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TWENTY-SIXTH BIENNIAL REPORT  
OF THE  
NORTH CAROLINA  
STATE BOARD OF HEALTH

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JULY 1, 1934 — JUNE 30, 1936

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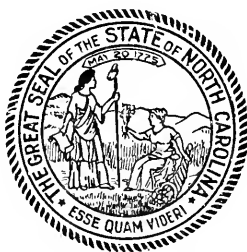




TWENTY-SIXTH BIENNIAL REPORT

OF THE

NORTH CAROLINA  
STATE BOARD OF HEALTH



JULY 1, 1934 — JUNE 30, 1936



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JOHN LABRUCE WARD, M.D.

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Term expires 1939

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Term expires 1937



## LETTER OF TRANSMITTAL

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RALEIGH, N. C., October 10, 1936.

*His Excellency*, J. C. B. EHRLINGHAUS,  
*Governor of North Carolina.*

MY DEAR SIR:—Under Authority of Chapter 118, Article 1, Section 7050, Consolidated Statutes of North Carolina, I have to submit to you for transmission to the General Assembly the Biennial Report of the State Board of Health for the period July 1, 1934, to June 30, 1936.

Yours sincerely,

CARL V. REYNOLDS,  
*Secretary and State Health Officer.*

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## THE CHRONOLOGICAL DEVELOPMENT OF PUBLIC HEALTH WORK IN NORTH CAROLINA

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In the seventies Dr. Thomas Fanning Wood, of Wilmington, caught the vision of the possibilities of public health work to North Carolina. How fully he grasped the far-reaching consequences of his idea, how clearly he saw the ever-growing hosts of lives saved as a result of his vision and inspiration, we shall never know. We do know that the vision never left him, and that under its sway he worked, through the Medical Journal which he edited and through the North Carolina State Medical Society until his influence reached the people of the State in their General Assembly of 1877, with the effect that on February 12, 1877, the North Carolina State Board of Health was born. Ours was the twelfth State board of health to be established.

Without treating the development of the newly-established board with that thoroughness that could be termed history, we think it enough to set down here in chronological order the principal events in the life and growth of the North Carolina State Board of Health.

- 1877. Board created by the General Assembly. Consisted in the beginning of entire State Medical Society. Society acted through a committee. Annual appropriation, \$100.
- 1878. First educational pamphlet issued. Subject, "Timely Aid for the Drowned and Suffocated." Annual appropriation, \$100.
- 1879. The General Assembly reconstituted the Board of Health. Made it to consist of nine members: six appointed by the Governor, three elected by the State Medical Society. Term of office, five years. Dr. Thomas F. Wood elected first Secretary of the Board, May 21. Dr. S. S. Satchwell was first President of the Board. Other legislative provisions: (1) Chemical examination of water, and (2) organization of county boards of health, composed of all regular practicing physicians and, in addition, the mayor of the county town, the chairman of the board of county commissioners, and the county surveyor. Four educational pamphlets issued. Subjects: "Disinfection, Drainage, Drinking Water, and Disinfectants;" "Sanitary Engineering;" "Methods of Performing Post-mortem Examinations;" "Limitation and Prevention of Diphtheria." Annual appropriation, \$200.
- 1881. General Assembly passed a law requiring regulation of vital statistics at annual tax listing; law ineffective. Annual appropriation, \$200.
- 1885. General Assembly made county boards of health more efficient; allowed printing privileges not to exceed \$250 annually. Annual appropriation, \$2,000.
- 1886. The Health Bulletin made its appearance in April. Pamphlet on "Care Eyes and Ears," by Dr. Richard H. Lewis, printed and distributed.

1888. Yellow fever epidemic in Florida and refugees to Western North Carolina demonstrated value of a Board of Health to cope with situation. Annual appropriation, \$2,000.
1892. Dr. Thomas F. Wood, the Secretary of the Board, died August 22. Dr. Richard H. Lewis elected Secretary to succeed Dr. Thomas F. Wood, September 7. Annual appropriation, \$2,000.
1893. Legislative provisions: (1) Laws improving the reporting of contagious diseases, (2) the protection of school children from epidemics, (3) protecting the purity of public water supplies, and (4) regulation of common carriers. Legislature provided that Governor appoint five of the nine members of the Board of Health, that the State Medical Society elect four, and that the term of office of the members of the State Board of Health be from five to six years. The \$250 printing limit was removed. Pamphlet on quarantine and disinfection was prepared and reprinted by many of the State papers. Annual appropriation, \$2,000.
1894. A number of public health conferences were arranged and held in different towns of the State. Bulletin was increased from a mailing list of 800 to 1,200. Annual appropriation, \$2,000.
1895. Dr. Albert Anderson and Dr. W. T. Pate were elected bacteriologists for the board. Annual appropriation, \$2,000.
1896. Board passed a resolution requiring chemical and bacteriological examinations of municipal water supplies. Dr. Venable, of Chapel Hill, undertook the chemical examination, and Drs. Anderson and Pate the bacteriological examination. Board also directed Mr. John C. Chase, the engineer member, to inspect all municipal water plants in the State. Annual appropriation, \$2,000.
1897. General Assembly enacted law requiring county superintendents of health to be elected by county commissioners and reduced term of office to one year. Annual appropriation, \$2,000.
1899. General Assembly improved the laws protecting public water supplies. Smallpox prevailed extensively in the State. Dr. Henry F. Long, and later, on Dr. Long's resignation, Dr. Joshua Tayloe, were employed to travel over the State, consulting with and advising the local sanitary authorities as to proper means for protecting the public. Annual appropriation, \$2,000.
1900. State Board of Agriculture, on request of State Board of Health, agreed to examine samples of water from public water supplies until Board of Health could provide its own examiner. Annual appropriation, \$2,000.
1901. State Board of Embalmers, with representatives of State Board of Health, established. County health work placed in the hands of county sanitary committees composed of county commissioners and two physicians which commissioners elected to serve with them. Term of office of county superintendent of health made two years. Annual appropriation, \$2,000.
1903. General Assembly enacted law permitting Board of Health to charge \$5 for each analysis of a public water supply, this fee to be used

in paying Department of Agriculture for services of examiner. Dr. C. W. Stiles, U. S. P. H. S., before the State Medical Society at Hot Springs, called attention to prevalence of hookworm disease in the South. Dr. J. L. Nicholson and Dr. W. S. Rankin, working under State Board of Health during fall of 1903 and spring of 1904, showed great prevalence of this disease in North Carolina. Annual appropriation, \$2,000.

1904. A stenographer was employed. One hundred and twenty thousand pamphlets on tuberculosis were printed and distributed. There was a renewal and an extension of co-operative work between the Board of Health and the State press, a number of articles dealing with hygienic and sanitary subjects being furnished the papers and published in them. Annual appropriation, \$2,000.
1905. General Assembly established State Laboratory of Hygiene; imposed water tax of \$64 on all public water companies; voted \$600 annually for the support of laboratory. Small appropriation made it necessary for the Department of Agriculture to continue to assist State Board of Health. Annual appropriation, \$2,000.
1906. The North Carolina Association for the Study and Prevention of Tuberculosis was organized. Annual appropriation, \$2,000.
1907. Two thousand dollars appropriated for the State Laboratory of Hygiene. Pasteur treatment provided. State Sanatorium for treatment of tuberculosis founded; \$15,000 appropriated for permanent improvements and \$5,000 for maintenance. A law requiring the separation of tuberculosis prisoners from other prisoners was enacted. Annual appropriation, \$4,000.
1908. January 1, Dr. C. A. Shore became Director of State Laboratory of Hygiene. Annual appropriation, \$4,000.
1909. General Assembly provided for (1) whole-time State Health Officer; (2) collection of vital statistics of towns having a population of 1,000 or over; (3) that all public water companies file plans and specifications of their plants with the State Board of Health, and that the State Board of Health pass necessary rules and regulations for the care of public watersheds and plants and furnish such rules and regulations and other advice to those having charge of public water supplies; (4) that counties provide free diphtheria antitoxin for county indigents, and (5) that the maintenance appropriation for the Sanatorium be increased from \$5,000 to \$7,500, and an additional \$30,000 be granted for permanent improvements. Dr. Richard H. Lewis resigned as Secretary of the Board, and Dr. W. S. Rankin was elected as his successor, beginning his official work July 1. Annual appropriation, \$10,500.
1910. General effort to interest the people and State organizations in public health work. Bulletin increased from 3,500 edition to 10,500 edition. Addresses on public health work delivered to Conference of County Superintendents of Schools, State Federation of Women's Clubs, State Press Association, and Sanitary Sunday observed in April.

Dr. John A. Ferrell elected, February, Assistant Secretary for Hookworm Eradication; began work under State Board of Health and Rockefeller Sanitary Commission.

1911. Legislature established county boards of health to take the place of the county sanitary committees; county board of health composed of chairman board of county commissioners, county superintendent of schools, mayor of county town, and two physicians selected by the three county officials to serve with them. Legislature also abolished quarantine for smallpox and improved the quarantine laws. One thousand dollars annually appropriated to contract with antitoxin manufacturers for State supply of high-grade diphtheria antitoxin, with result that price of antitoxin was cut to one-fourth former price, saving the citizens of the State over \$30,000 annually. Bulletin increased from 11,500 copies to 20,000 copies each edition; closer co-operation with press of State developed; regular weekly press articles prepared and sent to papers; increase in numbers of popular pamphlets for distribution. Hookworm work this year largely educational through the school forces and investigative through county dispensaries; thousands of children found infected and treated. Strong sentiment began to make itself felt for better health work by counties, four counties employing whole-time county health officers. Guilford County—one of the four—began its work June 1 and was the first county in the United States to inaugurate full-time county health work. Maintenance appropriation for State Sanatorium increased to \$12,500, with \$20,000 voted for permanent improvements. Annual appropriation, \$22,500.
1912. Bulletin increased to 40,000 edition; number of popular pamphlets dealing with different diseases increased; press work improved; educational work of Board along all lines amplified. Secretary of Board of Health called attention of conjoint meeting of State Medical Society and State Board of Health to the relative importance of health problems and the bearing of this subject upon the proper apportionment of health funds; instrumental in passing a resolution to the effect that pellagra was an interstate problem, not a State problem, and requesting the Federal Government to deal with pellagra as a Federal problem; resolution responsible, to considerable extent, for successful effort on part of Hon. John M. Faison's securing Congressional appropriation of \$45,000 for the study of pellagra by the Federal Government. Hookworm work extended and county funds appropriated to supplement State and Rockefeller Foundation for this work. Annual appropriation, \$22,500.
1913. General Assembly passed Model Vital Statistics Law with \$10,000 appropriation for its enforcement. County superintendent of health changed to either county physician or county health officer, depending on whether part-time or full-time service. Educational efforts of Board continued and enlarged. Hookworm work along same line as year before increased in amount. Dr. John A. Ferrell resigned as Assistant Secretary to accept position with the central office

of the Rockefeller Sanitary Commission in Washington, D. C. Dr. C. L. Pridgen succeeded Dr. Ferrell. The movement for improved county health work had by this time resulted in ten counties electing whole-time county health officers. The State Sanatorium for Treatment of Tuberculosis turned over by Extra Session of 1913 to the management of State Board of Health. Annual appropriation, \$40,500.

1914. Preceding work of the Board continued. Board of Health took over management of Sanatorium; started out under many difficulties on account of the institution owing many debts and the appropriation being limited. Hookworm work changed to community work directed to the installation of sanitary privies in all homes. Laboratory began to produce and distribute free anti-typhoid vaccine. Dr. C. L. Pridgen resigned as Director Hookworm Eradication, and Dr. W. P. Jacobs succeeded him. Annual appropriation, \$40,500.
1915. General Assembly makes State vital statistics law conform to national model by requiring burial permits in rural communities; enacts legislation permitting county commissioners and towns and cities to appropriate money for support of tuberculosis citizens in State Sanatorium; provides \$15,000 for purchase and building of anti-toxin plant; appropriates \$60,000 for payment of Sanatorium debts and new buildings and other improvements, and \$25,000 annually for maintenance and \$10,000 for extension anti-tuberculosis work. Educational work greatly extended: Bulletin now 47,000; traveling public health exhibit shown at fairs and other assemblages; press work greatly developed through employment of Miss Kate Herring, a journalist, for her whole time; stock lectures with lantern slides supplied public speakers in different parts of the State; community soil pollution work under Dr. W. P. Jacobs stops in April, and Bureau of Rural Sanitation, with Dr. G. M. Cooper at its head, succeeds, beginning work May 1. Considerable amount of work done for improvement of prison conditions. The unit system of county health work gets a good start; over 52,000 people given three complete vaccinations against typhoid fever, and medical inspection of schools put on in six counties. Annual appropriation, \$50,500.
1916. North Carolina was admitted to the Registration Area for deaths. To the educational agencies of the Board was added a self-supporting moving picture health show. Many saw this show during the year and, seeing, believed in health work as never before. Bulletin reached 51,000 edition. Co-operation with University in developing a plan and putting on a home post-graduate course in medicine, giving first course to 169 doctors. Put into operation an optional system of hotel inspection, with grading and publishing scores. Continued Bureau of Rural Sanitation, giving three anti-typhoid injections to 48,000, making 100,000 immunized in summers of 1915 and 1916. Did complete medical inspection of six counties and with inspection a large amount of educational work as to sanitary and

hygienic living. Secured effort by Federal Children's Bureau to develop unit of child hygiene work, the Bureau using two employees to work in Cumberland and Swain counties for about eight months. Laboratory of Hygiene buys land and erects its own building. Annual appropriation, \$55,500.

1917. The General Assembly passed the following important health legislation: Chapter 263, entitled "An act to prevent and control the occurrence of certain infectious diseases in North Carolina"; Chapter 244, entitled "An act to provide for the physical examination of the school children of the State at regular intervals"; Chapter 276, entitled "An act for the co-operative and effective development of rural sanitation"; Chapter 257, entitled "An act to prevent blindness in infancy, designating certain powers and duties and otherwise providing for the enforcement of this act"; Chapter 66, entitled "An act to provide for the sanitary inspection and conduct of hotels and restaurants"; Chapter 286, entitled "An act to regulate the treatment, handling and work of prisoners."

Following the enactment of this legislation, administrative machinery, consisting of a Bureau of Epidemiology under the direction of Dr. A. McR. Crouch, a Bureau for the Medical Inspection of Schools under the direction of Dr. Geo. M. Cooper, and a Bureau for County Health Work, under the direction of Dr. B. E. Washburn, was established. Dr. Washburn, an officer of the International Health Board, was loaned to the State without cost, and the International Health Board, in addition to furnishing Dr. Washburn, appropriated \$15,000 annually for County Health Work in accordance with the provisions of Chapter 276.

The United States Public Health Service in February, 1917, detailed Dr. K. E. Miller to study county health work in different sections of the country and to establish for demonstration purposes, in Edgecombe County, department of health on an economic basis easily within the financial reach of the average county.

The State Laboratory of Hygiene moved into its own building, January 15, 1917.

The State was admitted to the registration area of the Union for births in January, 1917, the Bureau of the Census having found after investigation that our birth registration was 96 per cent complete.

The special campaign against typhoid fever begun so satisfactorily in 1915 was continued. Free vaccination of the people, however, was interfered with by the difficulty in securing medical officers to do the work, the preparedness program of the Government having caused many physicians and nurses to enter the army and navy; nevertheless, a total of 30,000 citizens of the State were vaccinated as a direct result of the Board's activities, and many thousands of others were vaccinated by the physicians of the State as a result of the educational work of the Board directed to im-

pressing the people with the value of vaccination as a means of prevention for typhoid fever.

In December, 1917, life extension work, which consisted briefly of the free physical examination of interested citizens for the purpose of advising them as to their physical condition and needed hygienic reform and medical treatment, was begun on a county basis. The funds necessary for this work were appropriated partly by the State and partly by the counties in which the life extension work was carried out. Dr. Amzi J. Ellington, of Raleigh, who at the time was a resident physician in the New York City Hospital, was employed and placed in charge of the work. Life extension work was carried out in Vance, Alamance, Lenoir and Robeson counties, and resulted in the full physical examination of 4,000 citizens. This work was very favorably received, and the outlook for its continued development seemed excellent when, with the declaration of war and the call for physicians to enter the military service of the country, Dr. Ellington enlisted in the Medical Corps of the Army. For this reason, and for the further reason that it has been almost impossible to secure health officers during the past two years, the work was not resumed.

The educational work of the State Board of Health consisted in the issuance of eight issues of the Monthly Health Bulletin, each monthly edition amounting to 45,000, and a daily newspaper health article. The Bureau continued its moving picture show exhibit. Arrangements were made for the preparation of newspaper plate, which was sent to and extensively used by 202 papers having a total circulation of 303,000.

The annual appropriation for the State Board of Health was \$60,772.16. The annual appropriation for the State Laboratory of Hygiene was \$12,500, and this, in addition to \$9,087.22 in fees permitted under the laws of the State to be paid to the Laboratory for special work, provided the Laboratory with a total annual budget of \$21,587.22.

1918. Much of the work this year was influenced by the war and had to do with preparedness. The State Health Officer visited Washington, at the request of the Council of National Defense and as chairman of a committee of State Health Officers, on a number of occasions for conferences with respect to preparedness measures, provisions for the control of venereal diseases, arrangements for co-ordinating the control of infectious diseases in the civilian population with their control in cantonments, and to arrange, if possible, with the Public Health Service and the Surgeon-General of the Army for preserving the personnel of State health departments during the war.

Considerable time was given to assisting Major John W. Long, Medical Aide to the Governor, in the work of organizing the Medical Advisory Boards and in interesting physicians in entering the medical service of the Army and Navy, and, later in the year, in

inducing the physicians of the State to become members of the Volunteer Medical Service Corps.

Partly as a result of these activities, the Surgeon-General of the Army assigned Major Joseph J. Kinyoun to assist the State Board of Health in the control of communicable diseases, the Board being under no financial obligation for Major Kinyoun's assistance; and as a result of the successful termination of the activities of various interests looking to a more effective control of venereal diseases, the Kahn-Chamberlain bill passed Congress, and made available to the State of North Carolina, and without condition, \$23,988.61 for venereal disease work.

The Laboratory during this year began the distribution of a high grade of diphtheria antitoxin.

The Bureau of Medical Inspection of Schools, under the direction of Dr. G. M. Cooper, developed, and with a degree of success that we may say established, free dental clinics for the public schools of the State. The Bureau also developed to a successful extent an arrangement in the form of adenoid and tonsil clubs for the practical and economic treatment of public school children suffering from these defects.

The Bureau of Epidemiology employed two third-year medical students, equipped them with motorcycles, and put them into the field to investigate infringements of the quarantine law. Sufficient convictions were obtained to impress the people with the determination of the State to enforce its health laws, and a fairly satisfactory compliance with the laws regarding the reporting of communicable diseases was brought about.

The Bureau of Venereal Diseases, paid for by the Federal appropriation, was established in September under the directorship of Dr. James A. Keiger.

Mr. Warren H. Booker, for the last seven years the efficient director of the Bureau of Engineering and Education, left in September for Red Cross work in France, the work of his bureau being continued, with the exception of the engineering work, by Mr. Ronald B. Wilson, who had been employed earlier in the year to succeed Miss Herring in assisting Mr. Booker with the journalistic work, Miss Herring having been engaged by the War Department for educational work.

Perhaps the most outstanding feature of the health work during the year 1918 was the epidemic of influenza. The epidemic began early in October and caused in October alone 6,056 deaths; in November 2,133 deaths, and in December 1,497 deaths, a total during the last three months of 9,686 deaths.

The annual appropriation for the State Board of Health for 1918 was \$73,210.38.

The annual appropriation for the State Laboratory of Hygiene was \$12,500. The Laboratory, during this year, collected \$8,532.48



in fees for special work, so that the total income of the Laboratory for this year was \$21,032.48.

1919. The General Assembly passed the following important health legislation: Chapter 71, entitled "An act to prevent the spread of disease from insanitary privies"; Chapter 192, entitled "An act to provide for the physical examination and treatment of the school children of the State at regular intervals"; Chapter 206, entitled "An act for the prevention of venereal diseases"; Chapter 213, entitled "An act to require the provision of adequate sanitary equipment for public schools"; Chapter 214, entitled "An act to obtain reports of persons infected with venereal diseases"; Chapter 215, entitled "An act to amend Chapter 671, Public-Local Laws of 1913, relating to the injunction and abatement of certain nuisances."

The Bureau of Engineering and Inspection was organized in April. The engineering work of the Board had been suspended with the resignation of Mr. Warren H. Booker in September, 1918, Mr. Booker having gone to France to engage in tuberculosis work under the direction of the Red Cross. Between September, 1918, and April, 1919, the engineering problems coming before the Board had been referred and very kindly and effectively taken care of by Col. J. L. Ludlow of Winston-Salem, the engineer member of the Board. Mr. H. E. Miller, an engineer and a graduate of the University of Michigan, was placed in charge of the new bureau, and his brother, Dr. K. E. Miller, of the United States Public Health Service, was detailed by the Service to assist him in the organization of his work. Mr. H. E. Miller and Dr. K. E. Miller spent the spring and summer and a part of the fall in studying various types of privies, in preparing plans for the construction and maintenance of privies, and in preparing the necessary notices and literature to inform the people of the objects and requirements of the new privy law.

On May 1 Dr. A. J. Warren, health officer of Rowan County, was appointed to and accepted the position of Assistant Secretary of the Board.

About the first of the year Miss Herring returned to the educational work of the Board. After a few months she returned to the Federal Service, and Mr. R. B. Wilson, who had left the Board work upon Miss Herring's return, was again offered a place with the Board. Mr. Wilson accepted and assumed his duties on July 1.

On August 1 Dr. A. McR. Crouch, Director of the Bureau of Epidemiology, resigned to accept a position with the city of Wilmington. Dr. F. M. Register, whole-time health officer of Northampton County, succeeded Dr. Crouch as director of the bureau.

Dr. E. J. Wood resigned this year, effective at end of his term, and Governor Bickett appointed Dr. E. J. Tucker of Roxboro for six years term—first dentist to serve on Board.

In September Dr. J. R. Gordon, Director of the Bureau of Vital Statistics since 1914, resigned on account of impaired health, and

on October 1st the Bureau of Epidemiology and the Bureau of Vital Statistics were combined and placed under the direction of Dr. Register.

In September Mrs. Kate Brew Vaughan, Director of the Bureau of Infant Hygiene, resigned. The bureau was reorganized under an understanding with the American Red Cross and was enlarged to include, in addition to infant hygiene, the problem of public health nursing, the name of the bureau being changed to that of "Bureau of Public Health Nursing and Infant Hygiene." Under the agreement with the Red Cross this bureau was to have an available appropriation of \$12,000 a year, half of which was to be furnished by the American Red Cross and half by the State Board of Health. The personnel of the bureau and its plan of work, under the agreement, was made contingent upon the approval of both participating agencies, the American Red Cross and the State Board of Health. In December Miss Rose M. Ehrenfeld took charge of the new bureau and began its organization and work.

On October 1 Dr. Jas. A. Keiger, Director of the Bureau of Venereal Diseases, resigned and Dr. Millard Knowlton was appointed to succeed him.

The typhoid campaign carried on during the summer through previous years was continued in the summer of 1919, using third-year medical students, furnished either with automobile or motor-cycles for getting about. Campaigns were carried out in the following counties: Bertie, Cabarrus, Chatham, Chowan, Columbus, Craven, Hertford, Iredell, Johnston, Lincoln, Onslow, Pasquotank, Perquimans, Randolph, Richmond, Rockingham, Stanly, Union, Warren, Wayne. A total of 49,076 were given complete vaccination.

The educational work of the Board consisted of the publication of 48,000 monthly edition of the Bulletin, and the distribution of about 350,000 pieces of public health literature.

The funds available during this fiscal year amounted to \$198,549.14, of which \$102,301.98 was from State appropriations and the remainder from outside sources.

The appropriation for the State Laboratory of Hygiene for this year was \$28,500; in addition to this, the Laboratory collected in fees for special work, for antitoxin, and in water taxes a total of \$14,344.02, making a total of \$42,844.02 available for work of Laboratory.

1920. During this year there was a Special Session of the General Assembly, lasting twenty days and held in the latter part of August. This Special Session passed an act amending the vital statistics law, making the fees for local registrars 50 cents instead of 25 cents for each certificate properly filed with the State Board of Health.

On January 1 Dr. B. E. Washburn, who had had general direction of the co-operative county health work and who had rendered most acceptable service, was recalled by the International Health Board and detailed to take charge of their interests in Jamaica. Dr.

K. E. Miller, of the United States Public Health Service, who had been detailed in January, 1917, to organize a model county health department in Edgecombe County and then, in 1919, to assist his brother, Mr. H. E. Miller, in organizing the work of the new Bureau of Engineering and Inspection, to which was assigned the duty of enforcing the State-wide privy act, succeeded Dr. Washburn as director of the Bureau of County Health Work.

In January a co-operative effort with the United States Public Health Service and the International Health Board to demonstrate the possibilities and advantages of the eradication of malaria from certain towns and cities in the eastern part of the State was begun. The terms of co-operation were that the International Health Board and the State Board of Health were to pay one-half of the expenses of the local work and the town or city in which the work was done the other half, the Public Health Service furnishing, as its part, expert supervising personnel. The towns and cities chosen for this work were Goldsboro, Farmville, and Greenville, the budget for each municipality being, respectively: Goldsboro, \$13,670.98; Farmville, \$5,000, and Greenville, \$9,000, a total investment in this work of \$27,670.98. Mr. A. W. Fuchs, Associate Sanitary Engineer, was detailed by the Service to have supervision of the work.

In February Dr. A. J. Warren, Assistant Secretary of the State Board of Health, resigned his position in order to accept the appointment of city health officer of Charlotte, N. C.

In the winter and spring of 1920 the North Carolina Landowners' Association, under the progressive leadership of Mr. W. A. McGirt, of Wilmington, undertook a very extensive educational campaign against malaria, which was carried on through the public schools of thirty-eight counties in eastern North Carolina. A series of county and State prizes for the best essay on malaria by public school children were offered as an inducement to the school children to interest and inform themselves and, indirectly, their parents with regard to the importance of this disease. To make possible this work by the school children 75,000 malaria catechisms, prepared by Dr. H. R. Carter, of the United States Public Health Service, were distributed through the public schools of the eastern part of the State to the school children. Thousands of essays were written, and it is reasonable to believe that the campaign was one of the most successful public health educational attempts yet undertaken.

In June it was found advisable to separate the Bureau of Epidemiology and the Bureau of Vital Statistics which had, on account of the scarcity of health officers, been placed under the dictatorship of a single bureau chief, Dr. F. M. Register. Dr. Register was appointed Director of the Bureau of Vital Statistics and Dr. J. S. Mitchener was appointed Director of the Bureau of Epidemiology.

In April the Interdepartmental Social Hygiene Board assigned to the State Board of Health several workers for making a study of

vice conditions in North Carolina towns and cities and for taking such steps as were found expedient for decreasing prostitution. This group of workers was withdrawn in September on account of differences developing between them and Dr. Knowlton, chief of the Bureau of Venereal Diseases, with the understanding that another group of workers would be assigned to this work at a later date.

In June arrangements were made with the United States Public Health Service and the American Social Hygiene Association for the development of an elaborate educational unit on sex hygiene and venereal diseases designed to reach rural meetings through the use of picture films and a portable truck. An outfit consisting of several lectures and a moving picture truck began work in Cumberland County in August, and from its very beginning met a most cordial reception and gave every promise of developing into one of the most useful agencies for dealing with the venereal disease problem.

During the year the anti-typhoid vaccination campaign was continued in Alamauce, Bladen, Columbus, Duplin, Franklin, Gaston, Harnett and Mecklenburg counties. Co-operative campaigns, in which the counties furnished the working personnel, were also carried on in Anson, Johnston and Rutherford counties. A total of 29,435 citizens have been vaccinated against the disease, and this does not include Columbus County, in which the work was just beginning when this report was completed.

The educational work of the State Board of Health during this year consisted of a 48,000 monthly edition of the State Board of Health Bulletin and the distribution of approximately 350,000 pieces of public health literature.

The funds available during this fiscal year amounted to \$342,284.33, of which \$176,152.61 was State appropriation and the remainder from outside sources.

The appropriation for the State Laboratory of Hygiene for this year was \$25,000; in addition to this, the Laboratory collected in fees for special work, for antitoxin and in water taxes, a total of \$13,698.89, making a total of \$38,698.89 available for the work of the Laboratory. The above amount being insufficient, the Special Session of the Legislature authorized a loan of \$15,000 to enable the work of the Laboratory to be carried on, making a total of \$53,698.89 available for the work of the Laboratory during this year.

1921. The Legislature meeting early in January of this year was asked by the Board to amend the State law restricting the salary of the executive officer of the Board to \$3,000 annually, so as to make the salary \$5,000. Such an amendment was passed. A further request from the Board was that legislation be enacted removing the inspection tax of forty cents from privies coming under the supervision of the Board of Health. Such an amendment to the State-wide Privy Law was also enacted. A bill was introduced in this

session of the General Assembly under the initiative of Hon. Emmet H. Bellamy requiring a physical examination of all applicants for marriage and making issuance of license contingent upon the physical qualifications of the applicant. The State Board of Health approved and supported Mr. Bellamy's bill, realizing, as did the author of the bill, that the proposed legislation was but a step in the right direction and was, therefore, rather loosely drawn and left many things to be desired. The bill finally passed in amended form as Chapter 129, Public Laws of 1921.

The Governor appointed Mr. Chas. E. Waddell, an engineer, of Asheville, to succeed Col. J. L. Ludlow as the engineer member of the Board.

Perhaps the most important change inaugurated in State health administration during this year was the adoption of a cost basis for standardizing and measuring the efficiency of public health work in those counties in which the State participated financially. This new principle is fully described in the State Board of Health Bulletin for January, 1922, and a further discussion of cost basis for public health work is unnecessary here except, perhaps, to say that it is apparently at least one of the first attempts to introduce the cost system of industry into government.

The Bureau of Venereal Diseases, in charge of Dr. Millard Knowlton, established as a part of the war-time activities of the Board in co-operation with the Bureau of Venereal Diseases of the Federal Government, was combined with and made a part of the work of the Bureau of Epidemiology, under the general direction of Dr. J. S. Mitchener.

Funds available for the year included: State appropriation, \$275,000; miscellaneous receipts, \$164,184.42; total, \$439,184.42.

1922. In order to bring the records of this department into harmony with those of other State departments, in accordance with the Act of the General Assembly of 1921, changing the fiscal year of the State so as to begin on July 1st each year, this report ends with June 30, 1922. It, therefore, covers a period of nineteen months; one full fiscal year from December 1, 1920, to November 30, 1921; seven months from December 1, 1921, to June 30, 1922. Effective February 1, the American Red Cross Society abrogated the agreement existing since 1919 by which it jointly financed, with the Board of Health, the Bureau of Public Health Nursing and Infant Hygiene. This bureau was reorganized April 1 as the Bureau of Maternity and Infancy, for its maintenance the State receiving \$27,259.66 annually from the United States Government in accordance with the Sheppard-Towner Act for the promotion of the welfare of mothers and infants. Dr. K. P. B. Bonner, of Morehead City, was secured as the director of the reorganized bureau, with Miss Rose M. Ehrenfeld as supervisor of nursing and Mrs. T. W. Bickett in charge of educational work.

The funds available during this period, and their distribution were seven-twelfths of the amounts set out under the tabulation for 1921.

The appropriation for the State Laboratory of Hygiene for the nineteen months between December 1, 1920, and June 30, 1922, was \$87,083.33; in addition to this, the Laboratory collected in fees for special work, for antitoxin and in water taxes, a total of \$30,872.51, making a total of \$117,955.84 available for the work of the Laboratory.

1923. The General Assembly of 1923 enacted some important and far-reaching legislation affecting public health work in North Carolina. The most important legislation enacted this year was the act providing for an independent board of directors for the State Sanatorium for Tuberculosis, removing the direction of that institution from the authority of the State Board of Health. Facilities were also provided at the State Sanatorium for the confinement, care, and treatment of tuberculosis convicts. Other legislation included the act to provide for the sanitary manufacture of bedding, the latter act to be enforced by the State Board of Health. The Bureau of Epidemiology was again combined with the Bureau of Vital Statistics.

On March 1 Dr. G. M. Cooper was made Assistant Secretary of the State Board of Health, and Dr. J. S. Mitchener was assigned to the Bureau of Medical Inspection of Schools, after the consolidation of the Epidemiology work, which he had directed, with the Bureau of Vital Statistics. Dr. K. E. Miller, of the United States Public Health Service, was recalled for duty elsewhere.

In order to experiment with the plan of District Health Work, an effort was made to place responsibility for all State Board of Health activities under the direction of district directors attached to the staff of the State Board of Health. This effort was continued throughout the year, but proved to be ineffective and unsatisfactory.

During the year Dr. F. R. Harris resigned from membership on the State Board of Health to become health officer of Vance County. The Board elected Dr. D. A. Stanton, of High Point, to fill the unexpired term of Dr. Harris.

In order to further carry on the important work of malaria control in a number of the counties of the coastal plain area of the State, which work was so effectively commenced in an educational capacity in 1920, the International Health Board was requested to participate in this work and to provide a director for that service. The International Health Board agreed, accepted the invitation, and assigned Dr. H. A. Taylor, of Alabama, to head this division. Pamlico County was selected as headquarters for Dr. Taylor. The cost of this work was borne by the State Board of Health and Pamlico County contributing 40 per cent each, and the International Health Board the remaining 20 per cent. The

International Health Board, of course, paid the salary of Dr. Taylor.

In June Dr. J. S. Mitchener resigned as director of the Bureau of Medical Inspection of Schools and Dr. Roy C. Mitchell, who had been doing some special educational field work for the Board, temporarily succeeded Dr. Mitchener.

Early in 1923 Dr. W. S. Rankin, the State Health Officer, was invited by the Committee of Municipal Health Department Practice of the American Public Health Association to become field director for the committee in making a study of municipal health practices in the United States. This was for the purpose of working out a basis or set of principles through which city health departments could be given classification or grading, and also for the purpose of assisting such departments in their organization work. The request was brought before a special meeting of the executive committee of the Board, and it directed the Secretary to take advantage of the opportunity offered. The Board granted to the Secretary one year's leave of absence, but requested him at the same time to continue in touch as executive officer of the Board with the work of the Board.

On November 1 Dr. Rankin assumed his duties and established official headquarters in New York City for the work of the committee.

The general organization of the executive staff of the Board was continued with the Assistant Secretary, Dr. G. M. Cooper, as official head of the staff. Local health work in the eastern half of the State was directed by Dr. H. A. Taylor, and that in the western part of the State by Dr. E. F. Long, who had been assistant to Dr. K. E. Miller as director of county health work. To assist Dr. Taylor in the east, Dr. George Collins, formerly health officer of Mecklenburg County, was employed, and to assist Dr. Long in the western half of the State Dr. C. N. Sisk, formerly health officer of Forsyth County, was employed.

During the year a plan for the more adequate sanitary control of public milk supplies in the State was formulated. This work was undertaken under the direction of the Bureau of Engineering and Inspection, and Mr. Malcolm Lewis was employed to organize this work. Several changes in personnel took place this year. Dr. M. L. Iseley, who had been employed in county health department work, and Dr. Roy C. Mitchell resigned. Miss Rose M. Ehrenfeld also resigned.

1924. During this year Dr. Rankin continued his work with the American Public Health Association until November 1. During this period the work of the Board was directed by Dr. G. M. Cooper, serving as Acting Secretary. On November 1 Dr. Rankin returned, and during that month, under the direction of Dr. Maxey of the United States Public Health Service, a school for health officers was conducted under the auspices of the State Board of Health for one week in Raleigh. This meeting was well attended, and every

modern method which might be utilized in the work of a modern public health department was discussed throughout the week.

Dr. M. L. Townsend was placed in charge of the Division of Health Education. Dr. K. P. B. Bonner resigned as director of the Bureau of Maternity and Infancy.

1925. Dr. Rankin resigned, effective June 1, to accept the position of director of the Hospital and Orphan Division of the Duke Foundation. At a meeting of the Board of Health on May 30 Dr. G. M. Cooper was unanimously made Acting Secretary for an indefinite period of time to succeed Dr. Rankin. During the year Dr. E. F. Long resigned as director of county health work and Dr. C. N. Sisk, who had been assistant to Dr. Long, was placed in charge of county health work, without an assistant.
1926. On June 21 Dr. Charles O'H. Laughinghouse, a member of the Board, was elected permanent Secretary and State Health Officer to fill the unexpired term of Dr. Rankin. Dr. Laughinghouse accepted and took office October 1. Dr. G. M. Cooper, who had for sixteen months administered the work of the Board as Acting State Health Officer, continued with the service and was assigned to the Bureau of Health Education, succeeding Dr. M. L. Townsend, who resigned. On August 6 Dr. Richard H. Lewis died. Dr. Lewis had served as a member of the Board since 1885, and from 1892 to 1909 he served as Secretary of the Board. Since 1909 he had been a member of the executive committee. Dr. Lewis held his membership on the Board by appointment from the Governor. To fill the term of Dr. Lewis, expiring in 1931, Governor McLean appointed Dr. John B. Wright, of Raleigh. Among other reasons assigned for this appointment, the Governor stated that it had been the rule since the Board of Health was established to have at least one of the members of the Board a resident of Raleigh.

When Dr. Laughinghouse resigned, in order to accept the election to the position of State Health Officer by his fellow members on the Board, the remaining members of the Board elected Dr. W. S. Rankin, of Charlotte, former Secretary of the Board, to succeed Dr. Laughinghouse.

1927. There were no changes in personnel or in staff organizations during the year 1927. The most important event occurring this year was the death of Dr. J. Howell Way on September 22. Dr. Way had been a member of the Board for many years and had been President of the Board for a long time. Governor McLean appointed Dr. C. C. Orr, of Asheville, to succeed Dr. Way. At the first meeting of the State Board of Health following the death of Dr. Way, Dr. A. J. Crowell, of Charlotte, was made President of the Board. In April of this year Dr. W. S. Rankin resigned as a member of the Board, and Dr. L. E. McDaniel, of Jackson, was elected by the other members of the Board to succeed Dr. Rankin.



1928. Dr. J. C. Johnson, who had been director of the Oral Hygiene Division, resigned as director of the oral hygiene work of the Board, effective December 31.

During this year a corps of nurses employed in the Maternity and Infancy Division of the Board, one-half of whose expenses were paid by the Federal Government from Sheppard-Towner funds, held midwife classes in about thirty counties of the State. The nurses gave special instruction to midwives in groups, and the county authorities enacted midwife rules and regulations for the control of their practice.

The educational work of the Board was of a high order during this year. A thirty-two page Bulletin was issued monthly, and a moving picture machine with several films on modern health subjects was exhibited in many sections of the State.

1929. With aid secured from the International Health Board, the Life Extension Division was added to the activities of the Board this year. Dr. Frederick R. Taylor, of High Point, was made director of this division. Dr. Taylor carried this work before the medical profession in all sections of the State.

On January 1 Dr. Ernest A. Branch accepted the appointment as director of the Division of Oral Hygiene to succeed Dr. J. C. Johnson, resigned. Dr. Branch immediately set in motion reorganization plans for the oral hygiene work to include more lectures and more educational demonstration work. Dr. Branch made contacts with several of the colleges of the State and training schools for teachers.

Expenditures for the Board work this year reached the highest peak in the history of the Board, totalling about \$486,000. There were no significant changes, other than those mentioned above, in personnel during this year.

1930. This year marked many significant changes in the affairs of the State Board of Health. Early in the year Dr. C. N. Sisk, director of county health work, resigned. Dr. D. A. Dees succeeded Dr. Sisk as director of county health work. Soon after the resignation of Dr. Sisk, Dr. F. M. Register, director of the Bureau of Vital Statistics, resigned, and the work of that bureau was assigned to Dr. G. M. Cooper, in connection with his work as director of health education. On August 26 Dr. Chas. O'H. Laughinghouse, State Health Officer, died. Soon after his death, in a meeting of the Board, Dr. H. A. Taylor was made Acting State Health Officer. On September 24, following the death of Dr. Laughinghouse, the Board elected Dr. W. P. Jacobs State Health Officer to succeed Dr. Laughinghouse. On November 20 Dr. Cyrus Thompson, for many years a member of the Board, died. On December 16 the Board met and unanimously elected Dr. James M. Parrott, of Kinston as a member to succeed Dr. Thompson.

1931. At the beginning of this year, Doctor Jacobs having declined to accept the position of State Health Officer, to which he had been

elected by the Board on September 24, 1930, a bill was introduced in the Legislature abolishing the State Board of Health as then constituted. This bill was passed and became law during the session of 1931. With the enactment of the new law the terms of the members of the old Board were automatically terminated. Under this new law governing the State health work, legislative machinery providing for the establishment of a new organization to carry on the public health work of the State was enacted. The new law differs in many respects from the old law under which the Board had operated for so long. However, the most important provision of the old law was retained; that is, the non-political character of the Board and the retention of the permanency of the policies of the Board, although shortening the terms of office and making it impossible for the Board to become a self-perpetuating machine.

The important provisions in the new law under which the Board of Health work is now operating are as follows: The Governor still retains the power to appoint five of the nine members of the Board, the maximum term of office being four years instead of six, as under the old law, and no member to serve more than two terms, making the total tenure of office of any member not to exceed eight years. The Medical Society of the State of North Carolina still retains the power to elect four of the nine members of the Board, the same conditions as to term of office to obtain here as in those appointed by the Governor. It was recommended to the Governor, although not written into the law, and Governor Gardner accepted the suggestion, that he appoint one member from the State Dental Society and that he appoint a man recommended by that society. This is equivalent to allowing the State Dental Society to name one of the members, but still leaves the balance of power in the hands of the Governor. This seems to be a very satisfactory arrangement.

Another important change is that the Board still elects the State Health Officer, but it can only become effective upon the approval of the Governor. The term of the State Health Officer, along with members of the Board of Health, was restricted to four years, with the privilege of being re-elected one time.

Following the adjournment of the Legislature, the Governor appointed the following named members: Drs. J. T. Burrus, High Point; H. Lee Large, Rocky Mount; J. N. Johnson, Goldsboro, the dental member; Professor H. G. Baity, of the University of North Carolina, and Mr. J. A. Goode, a druggist of Asheville. The State Medical Society at its first meeting after the adjournment of the Legislature elected the following physicians to membership: Drs. James M. Parrott, Kinston; Carl V. Reynolds, Asheville; S. D. Craig, Winston-Salem; L. B. Evans, Windsor.

It will be noted that Dr. Parrott was the only member of the outgoing Board honored with election to membership on the new Board.

On May 28 the new Board met and organized. On that day it unanimously elected Dr. James M. Parrott State Health Officer. Dr. Parrott took the offer under consideration for a period of two weeks. On June 11 the Board met again; Dr. Parrott accepted the election and agreed to assume office on July 1. Dr. Parrott resigned his membership on the Board before being elected to the position of State Health Officer, and under the provisions of the new law the executive committee of the State Medical Society selected Dr. G. G. Dixon, of Ayden, to serve in Dr. Parrott's place until the 1932 meeting of the State Medical Society. It will be noted that this is an important variation from the provisions of the old law. Under the old law the other members of the Board held the authority to name a successor, whether a member resigned or died. Under the new law the Governor names his vacancies in his list and the executive committee of the State Medical Society is permitted to name a successor to serve only until the first meeting of the State Medical Society follows.

In the meeting of June 11 the new Board found it necessary to eliminate some members of the staff and to make some consolidations, on account of reduced appropriations for the Board work. The services of Dr. D. A. Dees and Mr. R. B. Wilson were dispensed with, effective July 1. The Board reorganized the staff and made many consolidations. The new reorganization follows:

The Board reorganized the work into divisions, making many consolidations and increasing the duties of the directors of each division. Following are the divisions organized: Administrative Officer, Dr. James M. Parrott; Director Division of Laboratories, Dr. C. A. Shore; Director Division of Preventive Medicine, Dr. G. M. Cooper; Director Division of Oral Hygiene, Dr. Ernest A. Branch. The division of County Health Work and Epidemiology was temporarily assigned to Dr. H. A. Taylor, but on August 3 Dr. Taylor resigned and Dr. John H. Hamilton, health officer of New Hanover County, was appointed director of this division. The position of director of Division of Sanitary Engineering was filled on July 14 by electing Mr. Warren H. Booker, who had formerly headed that work, to succeed Mr. H. E. Miller.

The election of Dr. Parrott was received throughout medical and public health circles of the entire State with enthusiasm. Under his able direction the work of the Board during the last half of this year moved with a precision which was gratifying to all the friends of public health work in the State.

1932. The year 1932 was uneventful in public health work. The term of none of the members of the Board expired this year, but all members continued their service just as the Board was constituted at the close of 1931.

The International Health Board awarded a scholarship to Dr. J. C. Knox for a year's special Public Health Work at Harvard

and to Dr. R. T. Stimpson for a year's special work in the School of Hygiene at Johns Hopkins.

Following the very favorable reception of Doctor Parrott's annual report at the conjoint session of the State Board of Health and the State Medical Society, which was presented at Winston-Salem in April, the work of the Board was carried on on all fronts with satisfactory results, although on account of reduced appropriations many activities carried on in previous years had to be curtailed or definitely eliminated.

The death rate in North Carolina for 1932 was 9.6 per 1,000 population. This is the lowest death rate ever before recorded in North Carolina. The trend in typhoid fever death rates has been consistently downward from 1914 to 1930. This year there were three more deaths than in 1931, there occurring a total of 158 deaths from typhoid fever. The increase in population, however, offset the slight increase in number, and the rate recorded was slightly lower than 1931. The cases and deaths from diphtheria this year were also the lowest of any previous year, although progress in the elimination of these diseases has not been so satisfactory as it should have been. Deaths from pellagra continue to show a marked decline.

This year is the third year of the so-called financial depression, and it is too early to record any opinion as to what effect unemployment and decreased income and rather widespread suffering may have on the health of the people of the State. It is not too much to say, however, that the effect will be felt more severely by the children than by any other class of the population.

The infant mortality this year was 66.4 per 1,000 live births. This is so far the best record the State has ever made. The maternal mortality remains high, and indications are that with decreased expenditures for maternal and infant hygiene the rates, particularly for infant deaths, will rise again, pushing the State back among those having an excessive infant death rate.

Expenditures for this year for all purposes by the Board were \$315,276, of which amount \$262,438 represented appropriations. This amount was just a little more than half of the total expenditures made by the Board of Health for the fiscal year ending June 30, 1930.

1933. The event of outstanding importance to the Board of Health this year was the death of Dr. C. A. Shore, which occurred on February 10. For twenty-five years Doctor Shore had been director of the State Laboratory of Hygiene. He had built the work of the laboratory during these years up to a point where its prestige and usefulness was equal to that of any other public health laboratory in America.

Doctor Shore served longer as a member of the executive staff than any other man who has ever been connected with the State Board of Health. He held the confidence and esteem of the medical profession as well as the general public to a marked degree.

He was a man of extraordinary ability, and much of the success of the public health work in North Carolina may be attributed to his fine and wholesome service.

Suitable tribute has been paid to Doctor Shore and recorded in other publications of the Board and of the State Medical Society. One event in this connection, however, should be recorded here, and that is that by legislative action all buildings of the State Laboratory of Hygiene are hereinafter to be known as The Clarence A. Shore Laboratory, in memory of his distinctive service.

A few weeks after the death of Doctor Shore, Dr. John H. Hamilton, director of County Health Work, of Vital Statistics, and of Epidemiology, was made director of the laboratory work. Doctor Hamilton, on assuming his duties as director of the Laboratory, resigned the duties of director of County Health Work and of Epidemiology, but retained, however, with the assistance of Dr. R. T. Stimpson as statistician and field director, the Bureau of Vital Statistics. Dr. D. F. Milam, a consultant assigned to the State Board of Health by the International Health Board, was made acting director of the Bureau of Epidemiology in place of Doctor Hamilton. Doctor Milam had as his assistant Dr. J. C. Knox. Dr. M. V. Ziegler, consultant assigned to the Board by the United States Public Health Service, assumed the duties of acting director of County Health Work to succeed Doctor Hamilton. During this year Mr. W. D. Riley, assigned to the work as Venereal Disease Control Officer by the United States Public Health Service, organized his work and succeeded in making an important contribution to the work of the Venereal Disease Control in North Carolina.

The following changes in personnel of the State Board of Health took place during this year. Dr. W. T. Rainey, of Fayetteville, was elected by the State Medical Society for a four-year term to succeed Dr. L. B. Evans, of Windsor, whose term expired this year. Dr. S. D. Craig was re-elected for a term of four more years. The Governor reappointed Dr. J. N. Johnson, dental member of the Board, for another term, which will expire in 1937. The Governor appointed Dr. Hubert B. Haywood, of Raleigh, for a four-year term, to take the place of Dr. J. T. Burrus, of High Point. The Governor also appointed Mr. James P. Stowe, a druggist of Charlotte, for a four-year term, expiring in 1937. Mr. Stowe succeeded Mr. J. A. Goode, a druggist of Asheville. Dr. Carl V. Reynolds succeeded Dr. Burrus as President of the Board. On July 1 Drs. Knox and Stimpson returned to the Board work and resumed their places after satisfactorily concluding their year's scholarship work at Harvard and Hopkins, respectively.

The year was not marked by any widespread outbreak of epidemic disease, and, notwithstanding a continuation of the financial depression, the work of the State Board of Health held up fairly well. The appropriations being lower this year than before for many years, much of the personnel service had to be reduced. A

material reduction in State aid to County Health Work caused considerable contraction of the activities of County Health Department Work, but for the most part the morale of State Board of Health employees as well as the county health employees has held up remarkably well.

The Legislature, meeting for an extended session following its opening in January, made drastic reductions in appropriations to all State health work and reduced the salaries of all State health employees. This was said to be necessary in order to balance the State budget and to maintain the State's credit.

The total expenditures for the Board of Health this year, that is, for the fiscal year ending June 30, were \$291,786. Of this amount \$225,274 was appropriated by the Legislature. It will be noted that this sum was less than half of that appropriated and spent for the fiscal year ending June 30, 1930.

1934. The event of greatest importance to the State Board of Health and to the health work throughout the State in this year was the death of Dr. James M. Parrott and the election of Dr. Carl V. Reynolds as his successor. Dr. Parrott assumed the duties of State Health Officer on July 1, 1931. He had thus served a little more than three years and four months at the time of his death. Dr. Parrott was the first State Health Officer to serve under the new, or reorganized, Board of Health. He was stricken with an attack of angina pectoris early in December, 1933. The last eleven months of his life, therefore, were ones of recurring illness and courageous fortitude in remaining at the helm of the Board of Health work. On the occasion of the first illness, with the consent of the members of the State Board of Health, he designated Dr. G. M. Cooper as Acting State Health Officer to be the responsible head of the work in such periods as he was physically unable to attend to the duties of the office. The following sketch concerning Dr. Parrott and his work, written by the Editor, was published in the Health Bulletin:

"The death of Dr. James M. Parrott, State Health Officer of North Carolina, occurred on Wednesday evening, November 7, 1934. Doctor Parrott had been health officer of North Carolina for a little more than three years. He was so active mentally and so near and dear to his coworkers here at the office that to me, even yet, it seems impossible and unbelievable to think that he is dead. Nearly thirty years ago I 'took' the State Board examination for license to practice medicine. He was a member of that board. From then on I looked on him as one of the big men in the medical profession. He held every office within the gift of his profession and loved it and served its interests with a passionate devotion.

"He took over the direction of the work of the State Board of Health in one of the darkest hours in the history of the Board. He brought to the affairs of the Board a new kind of leadership, a fresh outlook, a new viewpoint, and a breadth of vision which

served notice on the world that the Board had a resourceful and able executive in charge. Although he came to the Board work without previous experience in an administrative capacity of this type, and knowing little or nothing of the practical workings of a modern public health organization, his chief contribution, which will be duly recorded in the history of this period, to the cause of public health advancement was his stand for the professionalization of public health work.

"Before he had been here sixty days, he realized that all department divisions as well as all county health offices should be manned by physicians technically trained and experienced in public health work. It became necessary for him to oppose the ambitions of some of his lifelong friends in the medical profession, which hurt him; but it may be said to his credit that he stood four-square for competently trained men as public health officials.

"On assuming office, he realized that he had some very unpleasant duties confronting him in reorganizing the work of the Board. He soon demonstrated that he had convictions and the courage to back them up. When he laid down his armor for the great adventure, he left an organization of his own building functioning at top speed. He proved to his fellow workers here that he was tolerant to everything but laziness and lying and inefficiency. Being a man of clean personal life, and governed in all his actions by a strict sense of honor, he naturally expected such qualities in his staff and other subordinates.

"For the past year he struggled against the malady which finally ended his life, and at the same time he felt keenly his official responsibility. He knew all during that last year that, in justice to himself and his family, he should resign and be relieved of the extra tax on his failing strength. On the other hand, he felt that his work was not quite done. He saw many essential features of public health work sacrificed to a program of questionable economy. He did not question the good intentions of the Governor, the Budget Bureau, nor the Legislature, but he felt that the time had come to put an end to the further needless sacrifice of human life for the lack of intelligent preventive efforts. He had a conviction that the incoming General Assembly would see eye to eye with him. He was ready to submit a program of far-reaching importance to the people of the State. It could not be. His big brain is forever inactive. His profound knowledge of the public health needs of the people is left for his successor to acquire for himself.

"No man could build for himself a better monument than Doctor Parrott did in the record of worth-while work well done. In his death the State loses an honest public servant, and I lose a warm and understanding friend whose confidence was more precious to me than the riches of Araby."

Following Dr. Parrott's death, the State Board of Health assembled in Raleigh on November 10, 1934, and unanimously elected Dr.

Carl V. Reynolds, who at that time was serving as President of the Board, to the position of State Health Officer and Secretary and Treasurer of the State Board of Health. Dr. Reynolds immediately accepted and assumed his duties at once. The following Editorial appeared in the Health Bulletin in January, 1935, concerning Dr. Reynolds and his work. It is herewith reproduced in order that this chronological record may be complete:

“Doctor Carl Vernon Reynolds, of Asheville, on November 10 took the oath of office and immediately assumed his duties as Acting State Health Officer, succeeding Dr. James M. Parrott, who died November 7. Doctor Reynolds was unanimously elected to the position by his fellow members on the Board.

“Doctor Reynolds is a native of Asheville. His father was a successful Asheville physician who died when Doctor Reynolds was only three years old. Doctor Reynolds obtained his literary education in the private schools of Asheville and Wofford College, Spartanburg, South Carolina. He received his medical education at the college of the City of New York, graduating in medicine there in 1895. After his graduation he took a postgraduate course in London, England. Doctor Reynolds located in Asheville for the practice of medicine, specializing in pulmonary tuberculosis. His skill in combating that disease has been widely recognized by the medical profession. An example of their confidence was his election as president of the North Carolina Medical Society, in which place he served with distinction in 1920.

“On beginning practice he at once became interested in health work. His first connection was with the city health department in 1896. Following that period, for more than twenty years he served as city health officer of Asheville, in which capacity he rendered his city and the whole State important and permanent service. Some of his contributions to public health may be cited, as follows:

“He organized the first crusade against the common housefly ever undertaken anywhere.

“He assisted in drafting the first milk ordinance for Asheville.

“He secured progressive sanitary laws.

“He put through the compulsory vaccination law requisite to school attendance.

“He secured the adoption of a bread-wrapping ordinance and one requiring the tuberculin testing of cows.

“He saw typhoid fever drop from an average of two hundred and seventy cases a year in the city of Asheville to about five while he was city health officer, and saw smallpox practically eliminated.

“We enumerate these things so that the people of the State may know they have a well-trained health officer at the head of the State Health Department—one fully worthy of confidence and support.”



The general routine work of the State Board of Health during this year was satisfactory and successful in every way. Dr. D. F. Milam, who had been loaned to the State Board of Health by the International Health Board and who had been acting as State Epidemiologist, was transferred to other fields and on the first of July Dr. J. C. Knox, who had been Assistant in the Division of Epidemiology, became State Epidemiologist.

Dr. M. V. Zeigler, of the United States Public Health Service, who had also been loaned by that organization as a consultant in the Division of County Health work and who had been Acting Director of that Division, was transferred back to Washington about the first of September. Dr. R. E. Fox, who had completed a postgraduate course in the Public Health School of Harvard University, was made Director of the Division of County Health Work.

Dr. R. T. Stimpson, who had also successfully completed a postgraduate course in the School of Public Health of Johns Hopkins University, and who had been acting as Assistant in the Department of Vital Statistics, was made Director of that Division.

On November 10, at the time Dr. Reynolds was elected State Health Officer, Dr. G. M. Cooper was elected Assistant State Health Officer. Dr. Reynolds, of course, had to resign from his place on the Board in order to accept the office of State Health Officer. To succeed him as President, Dr. S. D. Craig of Winston-Salem was elected to that position. Dr. J. N. Johnson of Goldsboro, dental member of the Board of Health, was elected to the place of Vice-President of the Board. The law provides that in case of a vacancy occurring on the State Board of Health among the membership elected by the State Medical Society, that the Executive Committee of the Medical Society of the State of North Carolina shall have the authority to appoint a successor to serve until the next ensuing meeting of the State Society. In this case, the vacancy coming so close to the annual meeting of the State Society and the Board of Health on the following May 1 and there being no regularly scheduled meeting of the Executive Committee of the State Medical Society, it was decided to defer the election of a successor to Dr. Reynolds to the meeting of the Society the following May 1.

1935. Dr. Carl V. Reynolds served as Acting State Health Officer, the Governor having deferred the approval of his election the previous November 10, 1934, but at the annual meeting of the State Board of Health, which was held in Pinehurst May 7, 1935, Dr. Reynolds was unanimously elected State Health Officer. His election was for a full four year term to begin on the first of July following. The Governor immediately approved the election of Dr. Reynolds to be State Health Officer for the full term as stated.

At the meeting of the conjoint session at Pinehurst on Wednesday, May 8, Dr. Grady G. Dixon was re-elected to succeed himself to membership on the State Board of Health for a term of four years.

Dr. J. LaBruce Ward of Asheville was elected for the four year term to succeed Dr. Carl V. Reynolds, resigned.

In this year an important development in public health work was the experimental course put on in the school year of 1934-1935 at the University of North Carolina, under the auspices of the Public Health Administration, of a course of instruction designed to prepare physicians for positions as health officers. The courses in this school met with such success, plans were perfected to enlarge the scope of this new school as a part of the Medical School at the University. A fuller description of the inauguration of this school will be found under the records for 1936.

During this year following the enactment of the National Social Security law, plans were worked out for an expansion of the work of all the divisions of the State Board of Health, through financial aid coming through the Children's Bureau and the United States Public Health Service at Washington. It was a year which noted much activity in public health work all throughout the state, and the perfection of plans, state and local, for extending health department activities.

A Division of Industrial Hygiene was tentatively established in September of this year. The organization of this division resulted from an amendment to the Compensation Laws of the State by the 1935 General Assembly. This legislation made disablement or death by occupational disease interpretable as an injury by accident and thus compensable. For the execution of this legislation a sum of \$10,000 was appropriated by the legislature. The Industrial Commission appreciating that a problem of preventive medicine was involved, engaged in a series of conferences with the State Board of Health and Officers of the United States Public Health Service. The discussions culminated in the \$10,000 appropriated for the administration of the occupational disease legislation being placed at the disposal of the State Health Officer. With this money, an Industrial Hygiene program was inaugurated as an activity of the State Board of Health. This arrangement was made with the understanding that the work would be subsidized by the United States Public Health Service when Social Security funds should become available. To begin the work of this division and to prepare the program for enlargement to its full scope, Dr. H. F. Eason of the State Sanatorium for Tuberculosis Medical Staff was selected as the Director of the division. Mr. M. F. Trice, formerly of the Division of Sanitary Engineering of the State Board of Health, was made Engineer of this new division.

1936. What may be termed the outstanding event of importance for the first half of this calendar year covered in the period of this report may be said to be the definite establishment of the new public health department at the University of North Carolina and the selection of Dr. Milton J. Rosenau as its director. This new department, of course, is an integral part of the School of Medicine of

the University of North Carolina. The March issue of the Health Bulletin published the following descriptive news item of the inauguration of this department:

“The most important development in public health circles in many years for this section of the South is the establishment at Chapel Hill of a department of public health in connection with the School of Medicine, and the selection of Dr. Milton J. Rosenau as its director. This development has been made possible by the co-ordination of the staffs and the facilities of the North Carolina State Board of Health and the schools of medicine and engineering of the University of North Carolina.

“The new department, while an integral part of the University School of Medicine with Dr. C. S. Mangum, Dean, will be under the personal direction of Dr. Rosenau. Dr. Rosenau is generally regarded as America's foremost authority on public health. His books on preventive medicine are used everywhere as standard textbooks in all schools of public health. Until his retirement recently from that faculty he had been head of the famous Harvard School of Public Health for many years.

“For a long time the officials of the State Board of Health have worked hard to secure the establishment of such a school. The necessity for it has been apparent to all responsible health workers. The chief credit for success in launching the enterprise should go to Dr. Charles S. Mangum, Dean of the University Medical School, and to Dr. Carl V. Reynolds, State Health Officer. Both of these officials have worked hard and cooperated with each other in overcoming all difficulties in the way of the establishment of the new department.

“In the opinion of Drs. Mangum and Reynolds the development was in part made possible by the success of the course put on in the school year of 1934 and 1935 at the University under the auspices of the School of Public Administration. The first course put on with the teaching aid of the Schools of Medicine and Engineering of the University and members of the staff of the State Board of Health comprised a course of instruction for physicians in public health administration and extended over a period of twelve weeks. The work was so excellently done that they received recognition from the United States Public Health Service which assigned several of its applicants for post-graduate work to take the second course.

“We hope and believe that this enterprise under Dr. Rosenau's direction will expand into one of the most important departments of public health education in the entire country. The need for special training for physicians who want to enter public health work is great. Efficient public health departments, National, State and local in modern conditions of living are an absolute necessity. There are large numbers of young physicians who with proper post-graduate training could make excellent health officers.

“The success of the new department at Chapel Hill will go a long way toward establishing an efficient system of public health work on a sound basis throughout the entire southeastern section of the country.”

On February 1 of this year, funds from the Social Security Act became available to the State Board of Health through the Public Health Service and the Children's Bureau at Washington. In addition to adding a division of field training of public health nursing in connection with the new department of public health at the State University, a department of Public Health Dentistry was also established in connection with the Public Health School at Chapel Hill. This is said to be the first school of like character in the country. The County Health Department was enabled through the Social Security subsidy from Washington to aid all the whole time county health departments in an expansion of their work. The Division of Preventive Medicine employed Mrs. J. Henry Highsmith to begin work on February 20 as an Assistant in the field of health education. The work of this division, of course, took on enlarged activities. Plans were immediately set in motion to establish special county nurses in counties having no whole time health organization as special demonstration service for such counties. Plans were also launched to establish Maternity and Infaney Centers in many sections of the state as demonstration Centers, looking toward an eventual lowering of the infant and maternal death rates in this state.

A sum of \$17,500 of Social Security money was appropriated by the United States Public Health Service for the Division of Industrial Hygiene. Dr. M. T. Plyler was employed as an Assistant Medical Director in that division and Mr. C. R. Matheson as a Medical Technician. Both of these men had been employed on the staff of the North Carolina Tuberculosis Sanatorium. Up to the first of July more than 150 plants involving siliceous dust hazards had been surveyed. The entire asbestos textile industry in the state involving five plants had been studied, in cooperation with the United States Public Health Service, a granite cutting establishment investigation made, and a foundry study inaugurated. There were 525 asbestos textile workers and 46 granite cutters examined during the investigatory work. In addition, pre-employment examinations have been made of approximately 400 workers. All persons examined have x-ray films made of their chests. During this work nearly 300 atmospheric dust samples were analyzed. During the period, the physician and the engineer attended a four weeks' special course on Industrial Hygiene given by the Public Health Service in Washington. The division has installed a complete office equipment, as well as portable equipment necessary for successful execution of this important work. The new division is housed in the basement of the State Board of Health Building.

On April 1 of this year, the State Board of Health established a service for crippled children. This followed the approval in late March of the North Carolina Plan for Crippled Children, prepared by the State Board of Health and submitted to the United States Children's Bureau. This plan was a prerequisite of the Children's Bureau toward participation by the State in the distribution of Social Security appropriations for this purpose. Dr. G. M. Cooper of the Division of Preventive Medicine was designated as Medical Director of this service, and Mr. J. T. Barnes was employed by the State Board as State Supervisor in charge of administrative duties of this service. An advisory committee representative of the Medical, Health, Welfare, and lay interest of the State in the problem of the crippled child was formulated to advise in the execution of this program. Prior to June 30, public clinics were arranged in various centers of the State under the direction of the State Board of Health. Cooperation had been arranged with the North Carolina Orthopedic Hospital and was being carried out satisfactorily.

Under the provision of the Children's Bureau regulations, an advisory committee was secured by the Director of the Division of Preventive Medicine for the purpose of advising from time to time on the general program of maternal and child health service work. This committee held its first meeting on March 27 at the State Board of Health in Raleigh. Representatives from the following organizations were present: State Medical Society, State Dental Society, State Public Health Officers Association, State Nurses Association, State Federation of Women's Clubs, State Parent-Teacher Association, State Welfare Department, Division of Pediatrics and Obstetrics of the State Medical Society. On or before June 30, the enlarged program of all the divisions of the State Board of Health was well underway.

A detailed account of the organization work of each one of the divisions covering the activities of this biennium will be found in the pages to follow.

## REPORT OF THE SECRETARY-TREASURER AND STATE HEALTH OFFICER

July 1, 1934—June 30, 1936

CARL V. REYNOLDS, M. D.

In submitting my report as Secretary-Treasurer and State Health Officer for the biennium ending June 30, 1936, it will be my purpose, as a preamble, to present the outstanding accomplishments of this department.

During the year July 1, 1934, through June 30, 1935, I call your particular attention to the published Annual Report of the North Carolina State Board of Health to the Conjoint Session of the State Medical Society (printed in the 26th Biennial Report), for details.

To present this in a concise manner, I am quoting for emphasis a summary of the report made May 8, 1935.

1. We ask your assistance in carrying out the policies in the platform for the preschool child.
2. We desire to emphasize the importance of medical legislation representation.
3. We make a plea for more adequate maternal and prenatal care.
4. We desire to send free of charge to every child born, a birth certificate.
5. We hope to make available an improved pertussis vaccine.
6. Serum for measles.
7. A better test for syphilis.
8. We call your attention to the rise in the maternal death rate, seventy-seven percent of which is preventable.
9. We call attention to the mounting operative mortality from appendicitis.
10. We call your attention to the increasing death rate in the degenerative diseases.
11. We beg of you to make a general survey of the causes, and carefully study the situation for a united effort, on the part of the medical profession, to correct this condition.
12. It has been suggested that a hospital group study of all such deaths would be enlightening and such could be accomplished to improve a serious situation.
13. We desire to remind you of the establishment of a Training School at the University of North Carolina for health officers, and the contemplation of the establishment of a Training School at the University of North Carolina, including training for public health nurses, sanitarians and secretaries.
14. The 1935 Legislature gave us an Enabling Act which will permit the forming of District Health Departments.

The North Carolina State Board of Health is very much gratified to be able to report that most of the foregoing ambitious programs have been placed in motion and the majority of the subjects are being actually and effectively operated.

During the year, July, 1935, through June 30, 1936, I call your particular attention to the published Annual Report of the North Carolina State Board of Health to the Conjoint Session of the State Medical Society (printed in the 26th Biennial Report), for details.

The new improvements, additions and divisions arising out of the Social Security Act to be set up in your State Board of Health are: (a) grants in aid for Central Administration; (b) grants in aid for generalized public health work; (c) grants in aid for Maternal and Child Hygiene, (including Dental Hygiene); (d) grants in aid for Crippled Children; (e) grants in aid for Industrial Hygiene; (f) grants in aid for the regional teaching unit at Chapel Hill.

In presenting an account of our stewardship, it is desired to call to your attention outstanding accomplishments that merit attention, which, we are sure, meet with your hearty endorsement.

By seizing the opportunity and securing Dr. Milton J. Rosenau, an internationally known instructor in preventive medicine as director of the Teaching Unit at Chapel Hill, we were designated as the "Regional Training Center for United States Inter-State Sanitary District Number Two", comprising the States of Delaware, Maryland, District of Columbia, Virginia, West Virginia, Georgia, Florida, South Carolina and North Carolina, all named states contributing to the maintenance of the School, the first of its kind in the world.

I would like to call your attention again to a new activity. On January 1, 1936, through the cooperation of the Julius Rosenwald Fund, a colored physician was added to the Division of County Health Work as Field Agent to work on request of local health officers among the negro population in a program of public health education. This is the first service of this nature to be rendered in the United States.

With the one idea of rendering a greater and more wholesome service, State and Industrial Commissioners, representatives from the U. S. Public Health Service and the North Carolina State Board of Health caused to be established within the State Board of Health a Division of Industrial Hygiene—this important public health activity to be administered by and through the Department of Health in cooperation with the State Industrial Commission—North Carolina being the FIRST STATE to inaugurate such a program. Although several other states have engaged in industrial hygiene work on a limited basis, North Carolina is the FIRST STATE to undertake a program sufficiently comprehensive to include pre-employment examination of workers and the engineering and medical studies of plants.

In order that North Carolina might participate in the funds coming out of the Children's Bureau, it was necessary to set up a State agency. Your officers of the State Board of Health were successful in securing such an agency within its ranks. As a result we have secured the privilege of manning and controlling the activities of three additional projects, namely: Maternal and Child Hygiene, Dental Hygiene program and the Division for Crippled Children.

There have been established, and now operating, sixty maternal and infancy centers within the State of North Carolina.

The objectives of the Crippled Children's Division are to locate and register crippled children; provide treatment for the indigent type and follow up to the age of twenty-one years.

The outstanding accomplishments of the Division of Oral Hygiene for the year 1935-1936 is the arranging for a course in Public Health Dentistry to be taught in the School of Public Health at the University of North Carolina. This is the FIRST SCHOOL of Public Health in the United States or abroad to train dentists.

Continuing the report of the Secretary-Treasurer and State Health Officer for July 1, 1934-June 3, 1936, the following are excerpts of the activities as recorded in our Minutes:

At the quarterly meeting of the Board, July 12, 1934, at the request of the North Carolina Funeral Directors and Embalmers Association, Mr. David T. Yow was elected as a member of the Embalmers Board.

At this meeting the Secretary informed the Board that Dr. D. F. Milam who had been loaned the Board for nearly two years by the Rockefeller Foundation as State Epidemiologist, without cost to the State, had been withdrawn as of June 19, 1934. Also that Regional Consultant W. D. Riley, who had been loaned the Department by the U. S. Public Health Service, without cost, resigned effective as of July 15, 1934. The Secretary was instructed to express the Board's appreciation to Dr. Milam and to Mr. Riley, also to thank the Foundation and the Public Health Service for their goodness.

The Board voted to approve certain new items in the "Sanitary Rules and Regulations Governing Beauty Culture Shops, Schools, Colleges and other Hairdressing Establishments", and the Secretary of the North Carolina Board of Cosmetic Art was so advised. The State Board of Health assumes no responsibility in the enforcement of these rules and regulations.

At the meeting of July 12, 1934, Doctors Parrott, Baity and Haywood were named as a committee to consider various matters of sanitation in connection with the project for the construction of Port Terminals at Morehead City and Beaufort.

At the quarterly meeting of the Board on October 10, 1934, the Secretary advised of the generosity of the Rockefeller Foundation in assisting in a financial manner to the salaries, etc., of Dr. Wm. P. Richardson, Dr. J. C. Knox and Dr. R. E. Fox; also of the goodness of the Foundation in granting scholarships to Doctors M. H. Rourk, G. M. Leiby and G. H. Sumner; and of the valuable and material assistance to aid in certain counties in public health work.

At this meeting the Secretary reported to the Board of plans for the development of a training school for health officers at Chapel Hill and that it be known as the "School of Public Health and Hygiene." The School began September 24, 1934, with four students in attendance, Dr. Garriss, Dr. Dalton, Dr. Barden and Dr. Gregg.

A called meeting of the Board was held November 10, 1934, and a committee composed of Drs. Hubert B. Haywood, G. G. Dixon and S. D. Craig was appointed to draft resolutions of respect for Doctor James M. Parrott, which are as follows:



Whereas, Almighty God, in His infinite wisdom, has seen fit to remove from our midst our wise and beloved leader, Dr. James M. Parrott,

Be It Resolved, that we, the State Board of Health of North Carolina, spread upon our minutes this token of respect and expression of sorrow.

Our sense of loss is a deep and lasting one. Our sincere and heartfelt sympathy goes to the loved ones whom he has left behind. Public Health work in our State has sustained a severe blow in the death of this able executive and efficient State Health Officer. His career as an eminent physician honored the profession which he adorned. In his leadership he strove for the glory of the cause and not the individual. His clarity of thinking, his grasp of situations, his honesty of purpose, his sense of justice, his firmness of character and his love of all people are cherished memories to all of us who had the privilege to work and to be associated with him. Although he had, with a physician's insight, the full knowledge that he had an incurable disease which would suddenly take him from those he loved should he not cease his arduous labors, he continued to wage an unrelenting and successful warfare against the regimented hordes of the battalions of disabling disease and death in the State to which he had dedicated his life. Poets and historians throughout the ages of man have memorialized heroes of this type. His earthly life is ended, but his contributions to the well-being of humanity live behind him, and his memory will ever live fresh in the hearts and minds of his associates and the citizens of his State. It is indeed sweet and honorable to lay your life down for your country.

At the meeting on November 10, 1934, Dr. R. E. Fox was officially confirmed as the director of the Division of County Health Work as of October 23, 1934.

On November 10, 1934, Dr. Carl V. Reynolds was unanimously elected Acting State Health Officer to succeed Dr. James M. Parrott, who died November 7, 1934.

The Board passed a motion that the Acting State Health Officer write the Surgeon General of the U. S. Public Health Service, thanking the Service for the assistance rendered in the loan of Doctor Ziegler. Also that Doctor Ziegler be written a personal letter of thanks and appreciation.

At the called meeting of the Board on November 10, 1934, Dr. G. M. Cooper was elected Assistant State Health Officer.

At the quarterly meeting of the Board on February 12, 1935, the Secretary read a copy of resolutions from the National Malaria Committee for Doctor Parrott. Same were made a part of the Minutes of the Board.

Request for order for the installation of a sewerage system in the Town of Burgaw was passed on by the Board. Also regulations of the N. C. Board of Health extending the Hemp Sanitary District in Moore County to include the property occupied by the Pinehurst Silk Mills, Inc., were unanimously adopted.

At the quarterly meeting of the Board on February 12, 1935, the Board unanimously approved the adoption of the "Public Health's Platform for the Preschool Child in North Carolina." Also the proposed bill to be introduced to the General Assembly entitled "A Bill to be Entitled an Act to Protect the Health of Mothers and Infants and to Regulate the Practice of Midwifery" was read and unanimously approved.

The director of the Division of Oral Hygiene presented a program and told of the assistance of the Good Teeth Council in putting on a puppet show in the Schools of the State; and of the arrangements with Professor Koch,

of the University of North Carolina, for the puppeteers' training, and then of the showing of the puppet shows in the schools of the State.

The quarterly meeting of May 7, 1935, was held at Pinchurst, N. C., and "Board Policies for Allocation of Funds to Counties for Health Work" for the fiscal year beginning June 30, 1935, were read and unanimously adopted.

At this meeting, May 7, 1935, Dr. Carl V. Reynolds was unanimously elected Secretary and State Health Officer for a term of four years. Doctor G. M. Cooper was elected Assistant State Health Officer for a term of four years. Doctor S. D. Craig was elected President of the Board. Doctor J. N. Johnson was elected Vice-President.

At this meeting an application was made to the State Board of Health for the creation of a sanitary district in Lower Creek Sanitary District in Caldwell County. The petition was presented and carried.

The Board met in quarterly session August 22, 1935. Dr. G. G. Dixon was re-elected by the State Medical Society for a four-year term at the Pinchurst meeting, May 7, 1935. Dr. John LaBruce Ward was elected by the N. C. Medical Society for a four-year term at the same meeting. Both Dr. Dixon and Dr. Ward were administered oaths of office, duly signed and filed.

At the meeting of August 22, 1935, motion was made and passed unanimously that a request be made to the Budget Commission to restore the salary of the State Health Officer to \$7,500.

The Secretary presented and discussed the advisability of separating the Division of Epidemiology and County Health Work into two separate and distinct divisions. A motion was made and carried unanimously.

The Secretary reported the poliomyelitis situation in the State, discussing the matter in detail, especially about the work being done by experts from the U. S. Public Health Service as relates to control measures used in Guilford County, and by Dr. W. Lloyd Aycock, of the Harvard Medical School.

At the meeting on August 22, 1935, the following were elected to compose the Executive Committee: Dr. S. D. Craig, Chairman; Dr. Hubert B. Haywood and Dr. J. N. Johnson.

Mr. W. N. Vogler was elected to succeed himself on the Board of the Embalmers Examiners, in accordance with the request of the N. C. Funeral and Embalmers Association.

Doctor Reynolds called to the attention of the Board that the 1935 General Assembly had made it incumbent upon the State Board of Health to say whether or not a hospital should be relieved of ad valorem tax. He explained the procedure he had followed so far. The following resolution was unanimously adopted:

"That the State Board of Health send a certificate certifying that such general hospital is approved by the State Board of Health when such hospital is registered by the American Medical Association under the hospital service in the United States, data for which has been secured by the Council on Medical Education and Hospitals of the American Medical Association as published in the Journal of the American Medical Association, issue of March 30, 1935."

At this meeting Doctor Reynolds reported to the Board that a hookworm re-survey was to be conducted in North Carolina starting about October 1, 1935, through the co-operation of the Rockefeller Foundation and Dr. W. L. Leathers and Dr. A. E. Keller, of the Vanderbilt University Medical School, Nashville, Tennessee.

Also, the Secretary discussed at length the synopsis of the Social Security Bill as it relates to malaria; sanitary engineering; the training school at Chapel Hill; maternity and infancy; vital statistics; county health work; epidemiology; venereal disease, etc.

At the meeting on August 22, 1935, a change in the reporting of tuberculosis from the Extension Department of the Sanatorium directly to county or city health officers, or, if there is no whole-time health officer, to the quarantine officer of said counties, beginning September 1, 1935, this being the same procedure that is followed in other communicable diseases.

Dr. John H. Hamilton, Director of the Division of Laboratories, presented tentative blue print plans, sketches, charts, etc., of the new laboratory building and laboratory farm, which the Board hopes to build with funds from WPA. Also an "Application Resolution" was adopted.

"Rules and Regulations for the Sanitary Management of Hotels and Cafes" were passed unanimously at this meeting.

At the meeting of the Board on November 16, 1935, the Secretary read the report of the postgraduate courses in obstetrics which were put on in this State by Doctor McCord, of Atlanta, Ga.

The Secretary discussed with the Board the proposed plan for securing the services of a Negro physician for the advancement of public health work among the negro population of North Carolina through the Rosenwald Fund. Doctor Reynolds was commended for the steps already taken and with the progress made.

At this meeting Doctor Reynolds discussed the possibility of securing Doctor Rosenau, who had resigned from the Harvard Medical School, for the School of Hygiene and Public Health at the University of North Carolina. The Board requested that Doctor Reynolds continue his efforts and expressed enthusiasm at the prospect of securing Doctor Rosenau's services.

Resolution with regard to creating the Rural Hall Sanitary District in Forsyth County was adopted.

Resolution was presented for the creation of the Yanceyville Sanitary District, Caswell County. This was approved.

Resolution for the creation of the Archdale-Trinity Sanitary District, Guilford and Randolph Counties, was approved.

At the quarterly meeting of the State Board of Health held on February 6, 1936, the following items were of importance:

1. Securing the services of Doctor Walter J. Hughes, a negro physician, for furthering the advancement of public health work among the negro population of North Carolina, through the Rosenwald Fund.

2. Installation of a Division of Industrial Hygiene with Doctor Herman F. Easom as Director.

3. Doctor Milton J. Rosenau, director of the Division of Public Health, School of Hygiene and Public Health at the University of North Carolina.

4. The Board unanimously approved the following resolution:

"The State Board of Health approves the action of the Secretary in using the members of the staff of the State Board of Health to teach certain courses in the University of North Carolina School of Medicine in the Division of Public Health in the training of public health personnel."

5. The creation of sub-divisions of Maternal and Child Hygiene and Crippled Children under the supervision of Dr. G. M. Cooper, Director of the Division of Preventive Medicine.

6. Certain changes in the Standard Milk Ordinance presented to the Board for action and approval. These were approved in their entirety.

7. Request for issuance of an order by the State Board of Health for certain additions, extensions and improvements in the present water and sewerage system of Canton, N. C. The order was passed.

8. The following resolution was passed unanimously:

"The policy of the North Carolina State Board of Health is that the State Laboratory of Hygiene shall make available its diagnostic facilities to all persons licensed to practice the healing arts and sciences, but shall not supply them with any product, the use of which, by them, would be a violation of the law."

On May 5, 1936, the Board convened in quarterly session at Asheville, N. C., at the meeting of the State Medical Society. At this time Dr. Carl V. Reynolds submitted his annual report.

Doctor Reynolds submitted for the Board's consideration the sending of all parents of children born in North Carolina a "Notification of Birth Registration." The Department of Commerce, through the Bureau of Census, would furnish all certificates and mailing privileges without cost to the State. The proposal was accepted and motion carried unanimously.

In the discussion of the changes to be made in the screening of drug stores against flies, a motion was made, seconded and carried, to leave this change to the Engineering Department and the State Health Officer, for final approval.

After discussion, a motion was made and carried at the May 5, 1936, meeting that all circuses and carnivals be required to meet the sanitary laws, rules and regulations for the sanitary management of cafes and hotdog stands covering the preparation and sale of foodstuff.

The Board passed a motion at this meeting to amend rules and regulations governing the control of communicable diseases.

Respectfully submitted,

CARL V. REYNOLDS, M. D.,  
Secretary and State Health Officer.

## DIVISION OF PREVENTIVE MEDICINE

The personnel for the period was composed of one medical director, one stenographer, one special clerk in the Department of Maternity and Infancy, and two mailing clerks who send out all the literature of the Board and who handle the mimeograph and multigraph machines, eight trained nurses who do field work all the time in the Department of School Health Supervision and Midwife Control Work. Under the expanded program made possible by funds from the Children's Bureau, two additional nurses began work in the Maternity and Infancy Department, being assigned to special counties for one year. Plans at the close of the biennium were under way to expand this service to include about sixteen special nurses in as many part-time counties. Beginning in February, a special nurse was provided by this division through Children's Bureau funds for each of the whole-time county organizations in four counties and to be effective July 1. Two additional counties in this class were to be provided with an extra nurse. Late in the biennium a department of work for crippled children was placed under the medical direction of the director of this division. The work of this division at the close of the biennium covered the following activities: a department of medical school inspection or school health supervision, a department of maternity and infancy, a department of health education, a department for crippled children. Another function of the director of this division is handling medical correspondence or personal health service of the Board, and also the director is editor of the Health Bulletin.

## SCHOOL HEALTH SERVICE

School health service was organized in 1918 by this bureau and has functioned constantly ever since. During the two-year period ending June 30, 1936, the eight nurses engaged in this work inspected the school children in 45 counties, covering every section of North Carolina. For the most part the work of these nurses is confined to the smaller and more remote counties which have no organized health departments. There are, however, some large and wealthy counties in this group, but the authorities have never undertaken the organization of any form of whole-time health work. In these counties the nurses visit every school for both races. They inspect the children and record their findings on suitable cards, which are made permanent records in the offices of the county superintendents of schools. They also lecture to the children, grade by grade or in groups, and present their findings to both the assembled teacher groups and to the local newspapers in all the counties in which they work. They not only assist the medical and dental professions in every way possible to get follow-up work done, but they suggest to the parents, on printed forms, that attention be given to the children found badly needing operative, medical, or dental treatment for the removal of common physical defects. They impart instruction as to the ordinary sanitary measures, and give information about the prevention of the spread of communicable diseases. Competent, disinterested authorities have pronounced the work of these nurses as invaluable.

During this two-year period they have inspected a total of 1,403 schools and 142,625 children. A more detailed report follows:

Number counties worked .....	45
Number schools visited .....	1,403
Number children examined .....	142,625
Number children found defective.....	112,748
Number children found to be immunized....	{ Diphtheria ..... 45,663
	{ Smallpox ..... 31,046
	{ Typhoid Fever ..... 57,553
	{ Hearing ..... 2,040
	{ Vision ..... 14,459
	{ Teeth ..... 60,454
	{ Throat ..... 64,017
Number children having defects .....	{ Breathing ..... 28,191
	{ Posture ..... 15,270
	{ Orthopedic ..... 926
	{ Skin ..... 5,433
	{ Other ..... 31,374
Number children with tonsils removed .....	13,452
Number children 10% or more under average weight .....	31,381
Number children 20% or more over average weight .....	2,517

### MATERNAL AND INFANT HYGIENE SERVICE

In this department we send out a series of nine prenatal letters to expectant mothers in response to requests from the mothers themselves, their families or their physicians or the midwives. These letters contain confidential information direct from this department to the mother. Much helpful advice is contained in this series of letters. In addition to the letters, we send to each of these inquiring expectant mothers a specially prepared pamphlet known as "Prenatal Care." This is a pamphlet prepared by the U. S. Children's Bureau at Washington and contains authentic and scientific information written in language that the most ignorant mother can understand. In addition to the foregoing, the director of the bureau writes numerous letters answering questions of a general character sent in by expectant mothers.

This service is in no way devised to take the place of physicians, but is calculated to assist the physicians in their service to such patients. Its most valuable field, however, is among the people who do not have the service of a physician at childbirth. About one third of the mothers in the State who gave birth to babies in this biennial period were attended by midwives. They never made contact with a physician at all. Therefore it will be seen that this service is of inestimable value to a large group of women who otherwise would have had no such service.

During the period a total of 157,645 prenatal letters, books, pamphlets, and other definite instructions were sent to inquiring mothers on request. In addition we sent out specially prepared time cards and diet lists as well as thousands of specially prepared leaflets giving instruction for the individual care of infants to the number of 331,360. In connection with this we supplied, upon direct request 33,045 copies of "Infant Care." This material is sent only on request from the physician, the midwife, the mother, or the local health officer or nurse. In this literature is assembled much valuable information which is of great aid every day to the mothers as to the feeding and care of infants.

During the period a total of 806,949 pieces of literature have been sent out in connection with the Maternity and Infancy Division of the work. Also 21,163 boxes of silver nitrate solution, each box containing six ampules, which is sufficient for the use of this important prophylactic drug in the eyes of six babies, were sent out. This was sent to midwives, hospitals, and physicians.

Through this department an effort is made to make contacts once each year with all the midwives working in the State, this being undertaken in the counties having no whole time health officers. The plan is to assemble the midwives in small groups in their communities, where the nurses instruct them with reference to safety measures for the mothers they attend. They are instructed as to the minimum equipment they must have, the requirements for the prompt reporting of births, and the use of prophylactic silver nitrate treatment, which the law requires to be put into the eyes of each newborn baby within one hour after its birth for the prevention of blindness. During this biennium a total of 566 such meetings were held and a total of 2,711 midwives were examined and instructed by the nurses. More than 9,500 pieces of educational literature were sent the midwives to aid them in becoming more efficient in their work.

In the last year of this biennium, through the good agencies of the Children's Bureau at Washington, a series of postgraduate lectures, exclusively for physicians, was arranged. This work may be described as taking the form of an institute covering lectures every afternoon extending over a period of five consecutive days. These lectures were given by obstetricians of national reputation and were presented in each one of the councilor medical districts. Three of the series were given by Dr. James R. McCord, professor of obstetrics in Emory University Medical School, Atlanta, Georgia; five were given by Dr. Franklin F. Snyder, associate professor of obstetrics in the Johns Hopkins Medical School, Baltimore; and the remaining three were given by Dr. M. Edward Davis, associate professor of obstetrics in the University Medical School of Chicago. A total of about six hundred physicians registered for one or more of these lectures. Physicians from approximately two hundred and seventy-five different places in the State attended one or more of the lectures. The lectures were illustrated by scientific films of great value and interest to the physicians attending. No work of this division has been more important or of more interest in the opinion of the director than this work with and for the physicians.

### HEALTH EDUCATION

In this important department of the work the most effective service is through the columns of the Health Bulletin, a monthly publication started more than forty years ago. The Bulletin, a sixteen-page monthly, is sent on request to citizens of the State. The director of the division is editor of this publication in which a special effort is made to teach the simple elemental requirements of hygiene and sanitation in an understandable manner to all sections and groups of the population. During the period the number of copies prepared and issued each month increased from 35,000 to 37,000.

In addition to the average of 37,000 copies of the Health Bulletin being issued each month, a total of 1,816,065 copies of special publications, such as pamphlets containing available information about such communicable diseases as diphtheria, has been sent out on request to citizens of the State. There is available in this division a total of thirty-nine special bulletins and pamphlets on as many different diseases and conditions. New books, pamphlets and bulletins are prepared from time to time as the demands of modern public health service require. In addition to the foregoing, a total of many thousands of special mimeograph and multigraph communications offering specific information is sent out monthly, through the mailing department of this division. During the two-year period a grand total of 2,623,152 pieces of literature have been mailed out through this division.

### PERSONAL HEALTH SERVICE

In a State of more than three million people it is natural to suppose that a large and increasing number of them will be constantly writing to the State Board of Health for definite information on a variety of subjects affecting the health of the people. An inconceivable number of questions on every known subject in the field of medicine and public health are received during the course of every year. Naturally a large proportion of these questions cannot be answered, but many of them can and are answered with benefit to the inquirer. The keynote to this service in the replies sent out is information on how to protect the individual or the family from the ravages of preventable diseases. A large amount of personal advice is offered in such matters as nutrition and immunization against communicable diseases. An average of about fifteen letters a day are sent out every working day in the year.

### CRIPPLED CHILDREN'S SERVICE

The department for crippled children was established as a service of the State Board of Health on April 1, 1936, for the purpose of co-ordinating and broadening activities in the State in behalf of the crippled child. The work was placed under the medical supervision of the director of the Division of Preventive Medicine. Mr. James T. Barnes, formerly welfare officer of Wilson, was chosen as state supervisor for this department. Its establishment is in furtherance of plans developed over a period of several months to



provide means of co-operation with the Crippled Children's Division of the Children's Bureau, U. S. Department of Labor, in the administration of the provisions of the Social Security Act. It has been developed in conjunction with the North Carolina Annual Plan for Crippled Children, a brief outline of which follows:

A. Objectives.

1. Locate and register all crippled children in the State.
2. Effect and facilitate treatment of these children.
3. Follow up these children until the age of twenty-one years.

B. Description of Plan.

1. Financial participation by the State through appropriations for crippled children.
  - a. N. C. Orthopaedic Hospital (\$96,717).
  - b. State Board of Health Orthopaedic Clinics (\$6,000).
2. Official State Agency—State Board of Health.
  - a. A Commission composed of representatives of the North Carolina Orthopaedic Hospital and the Medical, Public Health, Nursing, Social Welfare, Vocational Education, and Civic leadership of the State has been organized to act in an advisory capacity to the State Agency in its program respecting the crippled child and to promote the co-operation of the Medical, Health, and Welfare groups. Meetings will be held twice a year or more often if the occasion arises.
  - b. Administrative activities for the needy crippled child will entail the operation of established clinics, co-operation with local Health and Welfare officials, providing hospital care and treatment and convalescent care.
  - c. The plan provides for the establishment of a department of the State Board of Health to be known as the Department for Crippled Children under a Medical Director and staffed by a State Supervisor, two Field Supervisors trained and experienced in the care of the crippled child, and a whole-time Secretary.
  - d. The twelve existing State clinics will continue to be operated under the supervision of the State Board of Health. Local Advisory Committees will serve each clinic for the purpose of promoting the work of these clinics which are operated as units of the State Plan.

C. The Needs of Crippled Children.

The greatest need for the care of the crippled children in North Carolina is the establishing of additional hospital beds. The North Carolina Orthopaedic Hospital cannot care for the institutional needs of all the crippled children in the State at the present time.

There are over 1,200 crippled children who have been examined and who are waiting for hospital care at this time. The total number of crippled children under 21 in this State is about 20,000 (figured on the basis of 6 per 1,000 population). It is estimated that from 75 to 90 per cent of this number are in need of some type of orthopaedic treatment.

The North Carolina Plan was approved by the Children's Bureau the latter part of March, 1936, after which the personnel was selected by the State Board of Health and assigned to duty April 4, 1936.

In assuming our duties in the Division we accept, as an Agency of the State, the responsibility of determining what are the needs of the crippled

child and of interpreting these needs to the State and Federal Governments. In turn, we assume the responsibility of interpreting to the community the services offered by the State and Federal Government for meeting the needs of the handicapped child and undertake to cause these services to be applied to the needs of the individual.

It appears essential, therefore, that the Division undertake these new responsibilities by contemplating its problem and beginning its activities with very definite objectives in view. The problem, simply stated, involves those effects which from birth, injury, or disease cause children to suffer structural physical handicaps calculated to hinder their adjustment to the ordinary mode of life and achievement. In approaching this problem and in the solution of it, the following outline of the Division's objectives is set forth:

A. To locate crippled children.

1. Establish a registration bureau in the State Department of Health.
2. Transcribe existing registrations of cripples.

- a. State clinic registrations, 1925-1936.
- b. American Legion Child Welfare Survey, 1934.
- c. Registrations at semi-public and private clinics operated in the State.

3. Utilize services of local Health, Welfare, and School officials in the location and registration of crippled children.

B. To secure expert diagnosis for these children in all parts of the State.

1. Establish clinics.

- a. Twelve State clinics.
- b. Two N. C. Orthopaedic Hospital clinics.
- c. Other clinics (under semi-public or private auspices).

2. Promote diagnostic clinics in isolated rural sections where need is indicated.

C. To provide expert treatment and hospital care.

1. Clinics.

- a. Minor corrections and treatments.
- b. Post-operative treatment and follow-up observations.

2. Hospital Care.

- a. N. C. Orthopaedic Hospital for children under sixteen years of age.
- b. Selected general hospitals.

D. To establish a field supervisory and follow-up service.

1. Locate and refer crippled children to clinics.
2. Assist in clinical procedures.
3. Observe and supervise care of patient in the home following treatment in clinic and hospital.
4. Safeguard results achieved in the clinical and hospital care of patients.

E. Engender public interest in the problem of the crippled child and encourage the recognition of its responsibility to create opportunities for the development of this group into as normal and useful life as possible.

1. Through local Health and Welfare Agencies.
2. Through civic organizations.
3. Through the study of problems pertaining to the crippled child, collection of data and the compilation of such information.
4. Preparation and publication of reports and statistics.

### ACTIVITIES

A. At the close of the biennial period the program for crippled children had been under way 85 days. During this time approximately 4,000 individuals between the ages of birth and 21 years have been located and registered at the State Board of Health. Information as to examination of these is available in practically all cases and supervision of these has been undertaken. Personal contacts have been made with Health and Welfare officials in most of the counties in the State, as well as many related groups, toward establishing co-operation in locating and referring individuals to the Crippled Children's Service.

B. There are 13 State clinics being supervised at the following points in the State: Elizabeth City, Roanoke Rapids, Tarboro, Wilson, Wilmington, Greenville, Fayetteville, Mount Airy, Winston-Salem, Charlotte, Lenoir, Asheville, and Bryson City. Other clinics are being organized at Greensboro and Salisbury. In addition to these there are clinics at Goldsboro and Gastonia under the administration of the N. C. Orthopaedic Hospital and the Duke Hospital Clinic at Durham with which there is co-operation. The State clinics provided examination, re-examination and treatment (for the less severe type of cripple) approximating 850 separate procedures during the period covered by this report.

C. Twenty-one general hospitals have been selected through which the State Board of Health will provide hospital care to those cripples from families who cannot afford care and treatment. Of these, 14 serve the white race exclusively, 3 serve the negro race exclusively, and 4 serve both races. A flat-per-diem-rate of charge for all services has been arranged with these hospitals. As of June 30, 1936, 89 individuals had been authorized to enter designated hospitals for care and treatment; 57 had been admitted; 49 operated on or otherwise treated; 33 had been discharged; 3 authorized cases suspended, and 1 authorization cancelled. The objective of the plan is to provide care and treatment for 450 hospital cases annually in the selected general hospitals. Therefore, the above activities, actually performed between May 1, 1936, and June 30, 1936, appear to be in line with the objectives.

D. The field work is going forward on a satisfactory basis. Activities are shown below:

#### 1. Office.

a. Number of staff conferences	13
b. Number conferences with surgeons	30
c. Number conferences with Health Officials	89
d. Number conferences with Welfare Officials.	86
e. Number conferences with Official Bodies	6
f. Number conferences with Non-Official Bodies	23
g. Number Rehabilitation Conferences	3
h. Number other conferences	48
i. Number conferences with Private Social Agencies	9

2. Clinic Procedure.	
a. Number clinics attended	26
b. Number patients contacted at clinics	556
c. Number instructions to patients	27
3. Field Service.	
a. Number investigating visits	29
b. Number new cases located	12
c. Number home visits to new cases	24
d. Number home visits to old cases	56
e. Number new cases referred to clinic or surgeon	27
f. Number old cases referred to clinic or surgeon	13
g. Number not home visits	12
h. Number exercises (given or instructed)	17
i. Number treatments (given or instructed)	4

The field work fills a great need in case planning and supervision. It co-ordinates care in the home with advice and treatment of the surgeons in the hospitals and clinics as well as certain other advice which is so essential to the progress and recovery of a crippled child. It serves to refer obstacles, needing to be overcome in the individual's treatment, to local health and welfare agencies for help and guidance. Especially is it effective in the case of parents who by lack of information, often ignorance, are negligent in the proper care and protection of their children.

E. Case planning has entailed the design and printing of several forms which have been submitted to the Children's Bureau for approval. These are now in use. Case files have been arranged, filed and cross reference indexed so as to maintain individual case-histories on all cases accepted for treatment in the hospitals. These, and a register record, provide a control at all times in respect to costs of authorized care, reports of treatment and progress of treatment and while convalescing and after recovery. All cases are followed up with varied degrees of frequency depending on the problem in the individual case. All applications are investigated with reference to the financial ability of the family to meet the cost of care and treatment.

## STATE LABORATORY OF HYGIENE

If it were necessary to restrict the biennial report of the State Laboratory of Hygiene in one sentence it might be stated truthfully that the major activities of the laboratory have increased 60% over the previous biennium, with an increase of 25% in the cost of operating the laboratory. The total number of specimens examined by the laboratory during the biennium July 1, 1934, to June 30, 1936, was 416,338, as compared to 247,673 similar examinations made from July 1, 1932, to June 30, 1934. The exact number of each type of examination is included in the statistical portion of this report.

Bacteriological examinations increased approximately 50%. The major portion of these were examinations of throat cultures for diphtheria. In 1934 these specimens came from 77 Counties and in 1935 from 85 Counties. Since the effective control of infectious diseases depends to a considerable extent upon an early recognition of potential sources of infection, we have endeavored to encourage laboratory procedures which would make possible early diagnosis. In the case of typhoid fever, we have urged that specimens from suspected patients be sent for blood culture, if the patient was seen in the early stages of the disease by his physician, and that reliance be placed upon agglutination test only during the later stages of the disease. The increase in number of specimens sent for blood culture, and for macroscopic agglutination test, indicate a growing appreciation of the services rendered by the laboratory. In 1934 specimens for blood culture were sent from 94 Counties and in 1935 from 96 Counties. Positive cultures were received from 58 Counties in 1934, and 53 Counties in 1935.

There has been a rapidly growing demand upon the laboratory for the aid in diagnoses of both gonorrhea and syphilis. In 1934 specimens, to be examined for gonorrhea, were sent from 63 Counties and in 1935 from 72 Counties. As an adjunct to our sero diagnostic procedure for syphilis, we have added the Meinicke Clarification Reaction 11. It has not been possible to perform this test on all specimens because of lack of personnel, and also the fact that many specimens do not yield sufficient serum for the performance of both tests. In 1935 118,076 Wassermann tests were performed, of these 16 1-10% were positive. During this year 36,045 Meinicke tests were performed, of which 18 3-10% were positive. Our Meinicke test is somewhat more sensitive than our Wassermann test. During the second study of sero-diagnostic procedures for syphilis, as conducted by the Advisory Committee of the U. S. Public Health Service, the State Laboratory of Hygiene participated with both Wassermann and Meinicke tests, both tests having a rating of 100% for specificity, but were not as sensitive as some of the other tests included in the study. Every effort will be made to increase the dependability of these procedures. During the year 1935 specimens were received from 99 Counties. From a public health point of view, and for the welfare of the patient, an early diagnosis of syphilis is most important. Syphilis is most infectious during the early stages. Effective treatment of primary syphilis reduces the hazard of the disease to the patient and renders him noninfectious. As a laboratory aid in the early diagnosis of syphilis, a satisfactory specimen container for Chancre serum has been made available.

This container enables every physician in the State to secure Darkfield examinations of specimens from patients for suspected primary syphilis. Positive Darkfield examinations can be secured approximately one month before sero diagnostic procedures can be expected to be positive. The saving of one month in the beginning of treatment is of vital importance to the patient and to the public.

The examinations of specimens of sputum for tuberculosis have increased markedly. Ninety-five Counties sent specimens in both 1934 and 1935. We prefer to believe that physicians in the State are depending primarily upon tuberculin tests and X-ray examinations for diagnoses of this disease, and that examination of specimens of sputum is relied upon primarily for the detection of carriers and as a check upon the effectiveness of treatment.

The increase in prevalence of rabies has been reflected during the biennium by the larger number of animal heads sent to the laboratory for diagnoses. A study, covering the period 1920 to 1935, indicates that rabies occurs in epidemic waves. The year 1920 marked the low point of a wave, with a gradual increase in the prevalence of the disease until the year 1925 when it reached its peak, declining gradually until 1931. During the years 1931 to 1935 the prevalence again increased with the indication that the disease would again decline in 1936 and subsequent years until approximately 1941. In 1934 animal heads were sent from 94 Counties; from 81 of these rabid animals were found. In 1935 animal heads were sent from 93 Counties.

The laboratory's aid in the diagnosis of malaria is the microscopic examination of blood smears. The number of these has increased markedly. In 1934 specimens were sent from 50 Counties, in 25 of which malaria parasites were found, and in 1935 specimens were received from 57 Counties, 27 of which showed the presence of malaria parasites. Each patient who harbors malaria parasites is a potential reservoir of infection. The widespread distribution of the potential sources of danger should make us increasingly alert in combating this disease.

The analyses of specimens of water indicate that our municipal supplies, although not as safe as they should be, are vastly superior to our private water supplies. Open wells and unprotected springs are always potentially dangerous. 79 7-10% of specimens sent from open wells show evidence of contamination. The 20% showing no evidence of contamination are dangerous and the satisfactory reports we supplied the owners probably created a false sense of security that may be disastrous to the consumers. No specimen should be sent to the laboratory if there is any visible way in which the water could become contaminated. The laboratory can be most helpful as an adjunct to the sanitary inspection of a water supply. It should be used only to locate hidden or concealed dangers.

The Weil-Felix reaction is a proteus X19 agglutination test which is helpful in the diagnosis of endemic typhus and Rocky Mountain Spotted Fever. According to laboratory records there is an increased prevalence of these diseases. Specimens were received from 92 Counties in 1934, with positive tests from 17. In 1935 specimens were received from 92 Counties with positive findings in 22.

The agglutination test for undulant fever is frequently helpful in the diagnosis of this disease. Specimens were received from 92 Counties in 1934, and from 91 Counties in 1935. Positive tests were reported to 17 Counties in 1934, and to 19 in 1935.

The number of miscellaneous examinations is increasing. The epidemic of poliomyelitis in the summer of 1935 probably explains the increase in the number of spinal fluids sent for examination since there is little evidence of increase in the prevalence of meningococcus meningitis. Specimens to be examined for intestinal parasites originated in 91 Counties in 1934, and in 92 in 1935. 8-10% of the specimens showed evidence of hookworm infestation, and 2-8-10% were positive for ascariis. During the biennium the laboratory began agglutination tests for tularemia, and assisted in the diagnoses of three patients with this disease.

There has been a marked decrease in the amount of both diphtheria and tetanus antitoxin distributed by the laboratory. The records of the laboratory indicating decreased use of smallpox vaccine would indicate that we are inviting an epidemic of smallpox in North Carolina. Since vaccination offers us our most effective weapon in combating smallpox, our people should decide whether they want vaccination or smallpox.

There was more typhoid vaccine used during the present biennium than during any previous period. The laboratory endeavors to record all failures of typhoid vaccine to afford protection. We have had fewer failures since we changed the strain of the organism used in the preparation of the vaccine, although there have been more severe reactions from the administration of the new vaccine than we experienced with the old vaccine.

In reference to the immunization against diphtheria, some explanation is necessary since the statistical report would indicate that we are protecting fewer of our children than we did two years ago. During a portion of the period July 1, 1932, to June 30, 1934, we distributed toxin-antitoxin, which required from three to five doses to protect a child against diphtheria. During the remainder of the biennium the Ramon toxoid was used. It required two or three doses. In November, 1934, we adopted the Alum precipitated diphtheria toxoid as our immunizing agent against diphtheria. One dose of this product will protect a higher percentage of children than would two doses of the Ramon toxoid, or three doses of the toxin-antitoxin. In interpreting the volume of these different agents in terms of the doses required to protect children, we dispensed enough in 1932-34 to treat 155,374 children, and in 1934-1936 enough to treat 169,974.

The increased sale of the arsphenamines indicates that our physicians are increasing their efforts to control syphilis. This disease constitutes one of our major health problems. Its control should be the next major objective of our public health program.

The financial statement is largely self-explanatory. A change in the coding of expenditures makes direct comparisons difficult. Its significant feature is that our total expenditures increased 24-8-10%. The receipts from the sale of products and for water analyses increased 25-6-10%, and the funds derived from tax sources only 24-1-10%. It seems desirable to repeat that

the major activities of the laboratory increased 68% over the previous biennium. Expressed in terms of fair yet conservative retail prices for the services rendered, the laboratory is now doing \$2,000,000 worth of work each year.

This increased volume in the work of the laboratory has brought us face to face with a very definite problem. The main building of our present laboratory plant was constructed in 1917. Since the appropriation was small, and since the floor space requirements were large, the building was constructed as cheaply as possible and therefore is not fireproof. In 1925 an annex 38x50 feet was built. Since then the work of the laboratory has increased: water specimens 50%, specimens for patients 300%, doses of prophylactic and therapeutic agents 500%. Floor space requirements are therefore necessarily greater. Our building is overcrowded. The inauguration of new procedures or an increase in the volume of the work now being performed is almost impossible for lack of space. We have no storeroom where supplies may be locked securely and stored or dispensed in an orderly manner. Our building vibrates so badly when trains are passing, or when centrifuges are being operated, that it is impossible to make laboratory examinations at such times. Our present plant is in a poor state of repair.

When the present laboratory building was constructed, it was located outside the city limits. Since then, the city limits have been extended for more than a mile beyond the laboratory and a residential area has been developed around the laboratory.

For the proper operation of the laboratory it is necessary for us to keep horses, sheep, calves, guinea pigs, rabbits, rats and mice. Our neighbors, on several occasions, have alleged that we are a nuisance.

Being located approximately two miles from the business part of town, we are outside the area where telegrams are ordinarily called for or delivered. All such messages must, therefore, be delivered and sent by telephone, thus inviting costly or embarrassing errors.

Our location makes it difficult for strangers to find the laboratory. We have no library or reading room. Books and journals are stored at random throughout the building.

Members of the 1935 General Assembly, on visiting the laboratory, invariably expressed the unsolicited opinion that we should have a new building.

An appropriation of \$12,000 was made to the laboratory for the present biennium for the purpose of repairing our building and equipment. It is only a matter of a short time until a new plant for the State Laboratory of Hygiene will be imperative.

Under the provision of Chapter 479 of the Public Laws of North Carolina for 1935, the State Board of Health, with the approval of the Governor and Council of State, and with the approval of the State Planning Board, as provided in Chapter 488 of the Public Laws of North Carolina, applied to the Public Works Administration for a loan and grant totaling \$250,000. This application was approved by the State Public Works Administration



Engineer, and is now in the Washington offices of this organization, where their finance and legal departments have questioned the legality of Chapter 479 of the Public Laws of North Carolina for 1935. It would seem that before this application can receive final approval by the Public Works Administration that a Supreme Court decision, qualifying this law would be necessary, or that the General Assembly amend it so as to conform to the requirement of the legal and financial division of the Public Works Administration.

The proposed new plant would cost approximately \$250,000. It would consist of:

(1). A fireproof, modern laboratory building, containing approximately twice the amount of floor space available in the present building, and would be located on or adjacent to Caswell Square; (2). a farm a few miles from Raleigh where we could have suitable barns for the housing of our large animals, and buildings for the production of our small animals.

Adequate floor space would be available for the inauguration of new procedures, for the development of new products, or the increasing of our present activities.

Fireproof construction would safeguard valuable records, expensive equipment and costly products.

Vibration-proof construction would make possible the carrying-on of all activities at any time.

The central location of the main building would make it possible for strangers to find the building and for telegrams to be received and sent in written form. It would, also, make possible a more prompt delivery service in receiving specimens and dispensing products.

A new building would include a modern library, available to all employees of the State Board of Health.

An auditorium would be provided for conferences with health officers, nurses, sanitary inspectors, and other public health workers, as well as for physicians and other professional groups. This auditorium, specially equipped, would be of inestimable value for public health education work.

Economy of operation would be affected by reduced gas bills, water bills, and so forth, in amounts worthy of consideration and evaluation.

An increase in the efficiency of our activities would undoubtedly result.

The new buildings would be known as the "Clarence A. Shore Memorial Buildings." To all who knew Dr. Shore, or who were familiar with his work, a suitable memorial should make a strong appeal.

The laboratory farm, in addition to housing the animals which are alleged to be a nuisance inside the City of Raleigh, would effect economies in the production of small animals for which we now pay approximately \$7,500 per year, in the production of animal feeds for which we now pay approximately \$3,500 per year, and by prolonging the life of horses used in antitoxin production and increase the amount of antitoxin which could be harvested from a given number of horses.

If a new laboratory plant is possible within the next few months, it would be unnecessary and inadvisable to spend more than three or four of

the twelve thousand dollars appropriated for the biennium for the purpose of equipment and building repairs; thus, some eight or nine thousand dollars could be saved on monies already appropriated.

The members of the staff, true to the high ideals instilled into them by the late Dr. Shore, have shown great fortitude. They have made every effort to render satisfactory service to the citizens of the State and to do everything within their power to aid the public health program for the protection of the lives and health of the people of North Carolina.

# STATE LABORATORY OF HYGIENE, RALEIGH, N. C.

## REPORT OF EXAMINATIONS MADE

	July 1, 1934, to June 30, 1935			July 1, 1932, to June 30, 1934—Total
	Positive	Negative	Total	
Diphtheria:				
Examinations, Bacteriological.....	960	9,589	10,549	8,883
Animal Inoculation.....				6
Typhoid:				
Agglutination Tests (Dried Blood).....				108
Macro Typhoid Widal (Whole Blood).....	173	7,707	7,880	5,707
Blood Cultures.....	428	4,926	5,354	4,715
Feces and Urine Cultures.....	99	3,607	3,706	4,320
Veneral Diseases:				
Gonococcus.....	4,237	10,378	14,615	6,038
Wassermann.....			235,515	170,800
Blood:				
Negative..... 184,928				
Four Plus..... 25,124				
Three Plus..... 6,558				
Two Plus..... 6,779				
One Plus..... 7,339				
Haemolyzed..... 1,807				
Unsatisfactory..... 636				
Spinal Fluid:				
Negative..... 2,001				
Four Plus..... 91				
Three Plus..... 26				
Two Plus..... 37				
One Plus..... 42				
Unsatisfactory..... 147				
Meinicke.....			66,277	
Blood:				
Negative..... 50,336				
Four Plus..... 7,689				
Three Plus..... 2,704				
Two Plus..... 1,466				
One Plus..... 4,015				
Haemolyzed..... 64				
Darkfield.....	7	70	77	13
Tuberculosis:				
Sputum, Bacteriological.....	1,233	10,098	11,331	6,976
Animal Inoculations.....			41	31
Rabies:				
Microscopic Examinations of Brains.....	1,740	1,998	3,738	2,613
Animal Inoculations.....			485	638
Malaria:				
Blood Smears.....	340	2,268	2,608	1,787
Urinalyses.....			127	100
Water Analyses:				
Bacterial and Chemical.....			12,434	11,479
Weil-Felix, Reaction.....	64	5,026	5,090	2,826
Undulant Fever Agglutination.....	78	5,153	5,231	2,916
Vincent's Angina.....	6,752	11,784	18,533	5,791
Tissue Examination.....				85
Miscellaneous.....			1,431	1,148
Spinal Fluid.....			388	184
Feces, Intestinal Parasites:				
Number of Examinations made.....	1,252	8,989	10,241	10,509
General Blood Cultures.....			690	
Tularemia.....	3	44	47	
Total.....			416,358	247,673

**STATE LABORATORY OF HYGIENE, RALEIGH, N. C.**  
**REPORT OF BIOLOGICALS DISTRIBUTED**

	July 1, 1934, to June 30, 1935	July 1, 1932, to June 30, 1934
THE FOLLOWING ARE MANUFACTURED IN STATE LABORATORY OF HYGIENE:		
Diphtheria Antitoxin:		
1,000-unit packages.....	596	865
5,000-unit packages.....	730	889
10,000-unit packages.....	11,918	13,061
Schick Tests for Diphtheria:		
50 Tests Packages.....	1,119	3,460
Schick Control for Diphtheria:		
50 Tests Packages.....	848	758
Smallpox Vaccine:		
Individual Tubes.....	92,474	101,283
50 Dose Vials.....	6,328	6,426
Typhoid Vaccine:		
3cc. vials.....	17,404	26,350
10cc. vials.....	200,710	191,959
Rabies Treatments (Complete—21 doses each).....	4,071	2,956
Tetanus Antitoxin:		
1,500-unit packages.....	17,810	21,253
5,000-unit packages.....	549	1,287
Pertussis Vaccine:		
5cc. vials.....	4,988	7,572
10cc. vials.....	4,709	6,420
Autogenous Vaccine.....	166	181
Bacterial Cultures.....	59	49
THE FOLLOWING ARE BOUGHT AND DISTRIBUTED AT COST:		
Diphtheria Toxoid:		
1cc. vials.....	2,305	0
3cc. vials.....	387	1,554
10cc. vials.....	16,563	23,723
30cc. vials (U. S. P. H. S.).....	0	112
Diphtheria Toxin Antitoxin:		
3cc. vials.....	106	2,342
10cc. vials.....	125	5,789
10cc. vials (U. S. P. H. S.).....	0	58
Nearsphenamine and Sulpharsphenamine:		
0 1-gram ampules.....	254	148
0.2-gram ampules.....	495	344
0.3-gram ampules.....	600	591
0 4-gram ampules.....	1,126	1,110
0 6-gram ampules.....	74,079	51,548
0 9-gram ampules.....	29,910	27,152
4.5-gram ampules.....	1,805	2,299
Distilled Water:		
10cc. vials.....	69,764	45,519
Scarlet Fever Antitoxin:		
Prophylactic Syringes.....	44	33
Therapeutic Syringes.....	4	31
Dick Test for Scarlet Fever.....	1,850	1,920
Blanching Test for Scarlet Fever.....	160	50
Erysipelas Antitoxin (syringes).....	86	50
Antivenene (syringes).....	4	15
Meningitis Serum (syringes).....	63	24
Bismuth Tartrate:		
20cc. vials.....	931	55
Bacteriophage:		
2cc. vials.....	0	9
5cc. vials.....	0	9
Insulin (units).....	0	44,300

## STATE LABORATORY OF HYGIENE, RALEIGH, N. C.

## EXPENDITURES

	July 1, 1934, to June 30, 1936	July 1, 1932, to June 30, 1934
Salary head.....	\$ 9,500 01	\$ 8,255 20
Salaries staff.....	74,432 65	64,228 45
Salaries extra.....	2,425 08	
Office Supplies.....	509 95	
Occupancy supplies.....	445 31	
Scientific Supplies.....	62,288 03	52,866 21
Fuel.....	535 45	
Agricultural supplies.....	5,073 01	
Postage, box rent.....	9,462 58	9,800 08
Telephone, telegraph.....	79 86	
Freight, express.....	1,009 97	
Travel expense.....	703 11	139 13
Motor Upkeep.....	1,583 38	1,189 18
Equipment Repairs.....	1,506 57	1,772 42
Building Repairs.....	2,361 67	
Printing.....	1,407 52	895 01
Light, power, water.....	3,919 24	3,737 29
General expense.....	184 02	160 01
Office equipment.....	622 52	920 48
Scientific equipment.....	1,458 82	
Insurance.....	511 75	448 75
Workmen's compensation.....	229 00	0 00
Total.....	\$ 180,249 50	\$ 144,412 21

## STATE LABORATORY OF HYGIENE, RALEIGH, N. C.

## RECEIPTS

		July 1, 1934, to June 30, 1935	July 1, 1932, to June 30, 1934
<b>BIOLOGICALS MANUFACTURED IN STATE LABORATORY OF HYGIENE:</b>			
Diphtheria Antitoxin.....	\$ 4,299 93		
Tetanus Antitoxin.....	11,542 05		
Rabies Treatments.....	17,718 29		
Autogenous Vaccine.....	605 17		
		\$ 34,165 44	\$ 28,701 95
<b>ARTICLES BOUGHT AND DISTRIBUTED AT COST:</b>			
Diphtheria Toxoid.....	\$ 9,517 87		
Diphtheria Toxin Antitoxin.....	163 89		
Neocarsphenamine.....	17,708 70		
Distilled Water.....	3,533 70		
Scarlet Fever Antitoxin.....	149 10		
Dick Test.....	41 12		
Blanching Test.....	11 00		
Erysipelas Antitoxin.....	355 75		
Antivenene.....	38 14		
Meningitis Serum.....	307 65		
Bacteriophage.....	2 00		
Insulin.....	10 00		
Bismuth Tartrate.....	473 62		
		32,312 54	25,948 23
Total.....		\$ 66,477 98	\$ 54,650 18
Refunds.....		950 44	340 10
Net Total.....		\$ 65,527 54	\$ 54,310 08
Water Tax.....		27,579 95	20,394 55
Special Fees.....		251 50	387 20
Mileage.....		4 20	0 00
Miscellaneous.....		1 210 25	288 60
Total.....		\$ 94,573 44	\$ 75,380 43

## FINANCIAL STATEMENT

Total Expenditures.....	\$ 180,249 50	\$ 144,412 21
Total Receipts.....	94,573 44	75,380 43
Appropriation.....	\$ 85,676 06	\$ 69,031 78

## DIVISION OF SANITARY ENGINEERING

This biennium has been characterized by opportunities to make improvements afforded through various government agencies for the extension of water works, sewerage, community sanitation, and malaria control drainage work. Fortunately, some additional personnel has been provided for supervision of these activities by the U. S. Public Health Service, the ERA, and the WPA. The pressure of extra work due to Relief Agencies has been so great at times, however, that the regular staff of the department has found it difficult to handle normal routine activities.

### WATER WORKS AND SEWERAGE

When the biennium started, and especially during the summer of 1935, vigorous efforts were made to persuade municipal officials to make application to the ERA, WPA, and PWA for funds with which to extend water mains and sewer lines, and to make major improvements in water and sewerage facilities. This work was done by means of field investigations, conferences, correspondence, mimeograph literature, mimeograph letters, especially scheduled meetings of town boards, and statistics. At the beginning of the first and again at the beginning of the second PWA, this Division was exceedingly busy with work projects which involved improved sanitation for a large population of the State. Our relationship with the PWA, which financed the larger projects, was a particularly happy one with Dr. H. G. Baity as State Director. The Federal projects have enabled municipalities to construct many miles of sewer and water lines giving greater convenience, fire protection, and health benefits to thousands of people.

### NEW WATER AND SEWERAGE FACILITIES

Through the different means of financing the following projects were either under construction or under contract between July 1, 1934, and June 30, 1936:

#### NEW WATER SYSTEMS

Angier	Fountain	Morven
Biscoe	Granite Falls	Randleman
Burgaw	Hemp	Richlands
Carolina Beach	Hillsboro	Stanley
Catawba	Jackson	Ramseur
Elizabethtown	Lowell	Whitakers
Faison	Lucama	

#### NEW SEWER SYSTEMS

Angier	Faison	Mt. Gilead
Biscoe	Fountain	Murfreesboro
Candor	Granite Falls	Ramseur
Central Falls	Hemp	Randleman
Columbia	Jackson	Richlands
Crossnore	Lucama	Star
Elizabethtown	Mayodan	Whitakers

**NEW SEWAGE TREATMENT PLANTS**

Angier	Granite Falls	Ramseur
Biscoe	Hemp	Randleman
Crossnore	Kernersville	Reidsville
Durham	Lucama	Salisbury
Faison	Jackson	Spindale
Fountain	Mayodan	Valdese
Gibsonville	Mt. Gilead	Whitakers
	Oxford	

**NEW WATER PURIFICATION PLANTS**

Canton	Hillsboro	Rocky Mount
Hemp	Randleman	Siler City
Hickory	Ramseur	Tarboro

The entirely new works mentioned above are interesting from the standpoint of population served. The twenty municipalities where new water systems are being constructed, or are under contract, have an estimated population of 18,800, or an average population of 940 per town. The twenty-one municipalities that are being provided with new sewer systems have an estimated population of 20,300 or an average of 967 per town.

In January, 1935, there were 15 municipalities of over 1,000 population without water supplies. Since that date new water systems have been, or are actually being installed in five towns. One municipality, Fuquay Springs, has been allocated funds with which to start construction in the near future. Seven more municipalities made application to the PWA, but have not as yet had funds provided, leaving only two towns of the original fifteen that have not taken definite steps to obtain water supplies. These are essentially mill villages. Thus, it will be rare to find a town of over 1,000 population in North Carolina that does not have a public water supply. There are many towns of less than 500 population with water supplies. From the standpoint of population served, the new water purification plants built during the biennium will supply more satisfactory water to 55,800 people. Outstanding among these are the plants already completed at Hickory, Tarboro, and Rocky Mount, and also the new plant under construction at Canton.

It is gratifying to see that within the biennium twenty-two new sewage treatment plants have been built, or are under contract. For these many types of treatment are used, from primary treatment only for the plants at Oxford and Salisbury; sand filters for Kernersville; a trickling filter at Granite Falls; chemical precipitation for sewage and textile wastes at Spindale; and the large activated sludge plant for Durham. This plant together with its outfall represents an investment of \$760,000. The proposed plant at Greensboro for which funds have been provided will represent a similar investment.

In addition to the above list, major improvements in water works or sewerage facilities have been made by the PWA at Lexington, North Wilkes-



boro, Pittsboro, Southern Pines, Statesville, Thomasville, and Winston-Salem. Under the second PWA, Greensboro, Concord, and Wilmington are making extensive improvements. The PWA projects under construction, or contract, during the biennium include fifty-one water works and sewerage projects, totaling approximately \$3,380,000 for water works and approximately \$2,570,000 for sewerage, or a total of \$5,950,000 of PWA water works and sewerage improvements for municipalities.

Many of these systems were installed largely as the result of the promotional work of the State Board of Health in acquainting municipal officials with the opportunities for obtaining public water supply and sewerage improvements using Federal funds and unemployed relief labor. Several towns not having such facilities heretofore have had them installed at very little cost to the community. In addition towns in all sections of the State having water works and sewerage systems have had them extended and improved.

Small water systems and especially small sewerage systems, water works extensions, and sewer lines have been especially adopted to the needs of the ERA and the WPA for putting men to work. In many of the smaller municipalities the ERA or the WPA constructed the entire sewerage systems. Notable among these are Elizabethtown, Faison, Mount Gilead, and Murfreesboro.

One of the movements showing the trend of improved sanitation was the establishment of sanitary districts at Knollwood, Lower Creek near Lenoir, Rural Hall, Yanceyville, Hemp, and Archdale.

The WPA, which really started active construction work in August, 1935, has spent over \$730,000 on 125 water works and sewerage projects as follows:

	No. of Project	Expenditures
Sewerage .....	87	\$604,000
Water Works .....	33	117,300
Water and Sewerage .....	5	8,700
	<hr/> 125	<hr/> \$730,000

Thus, through the ERA and the WPA, many thousands of homes within the last two years have been provided with water and sewer service, eliminating a great many privies within or adjacent to heavily populated areas, and providing water service from the better municipal supplies, eliminating many private dug wells and providing much needed fire protection.

The expenditure by WPA of \$730,000 does not represent the total cost of these projects. It is estimated by the WPA engineers that the sponsors' contributions on these water works and sewerage projects amounted to about 20% of the total cost of the projects, making the total expenditure for these works approximately \$912,000 within less than a year.

In this work, the cause of the public health has been advanced through:

1. The provision of sewerage and safe water supply to homes and communities not enjoying such conveniences heretofore.

2. Extending the area served by municipal water and sewerage systems, and
3. The elimination of nuisance conditions in streams.

The State Board of Health has had a prominent part in bringing about these improvements by:

1. Creating interest in such improvements in communities that needed them.

2. Sustaining such interest until conveniences needed were assured or the proposition definitely turned down, and

3. The study, modification, and approval of plans for the various PWA and WPA projects involving sanitation that have been executed.

In Mr. Ickes' report to the Senate, applications for 78 water works and sewerage projects totaling almost \$7,500,000 are listed. Of these, twenty projects totaling \$1,900,000 had received approval by the examining divisions and were awaiting allocation of funds. Although many of these projects may not be constructed with PWA funds, the first steps towards improved sanitation have been made and it is felt that a large percentage of these projects will be carried through at some later date under some method of financing.

It has been possible within the last year of the biennium to revive routine inspections of water and sewage treatment plants. The inspections which have been made after a period of time have shown the need for much improvement in several of the supplies. Inspections were made of Interstate Carrier water supplies for certification to the U. S. Public Health Service.

The Water Works School Conference, which was started in 1933, has been continued each year. These meetings have been well attended by the men who are in direct charge of the operation of water purification plants. It is the purpose of the school to give basic training in the fundamentals of the sciences upon which is founded modern water purification practice. The programs are varied from year to year for the benefit of those men who attend each school-conference.

Recognizing the health hazard involved, the Division of Sanitary Engineering has made considerable advance in swimming pool sanitation. There have been compiled recommendations, design suggestions, and other assistance for architects and engineers, as well as rules and regulations for adoption by local health departments, and weekly reports on the daily operation of swimming pools. During the biennium the Division has cooperated in the design of about thirty-one swimming pools, from the smallest complete pool at Goldsboro to the largest at High Point. Among those pools that are the best designed should be mentioned the municipal pool at Kinston and the new swimming pool under construction at Monroe.

A great deal of construction work to improve school sanitation was carried on by ERA, WPA, and PWA. Much of this construction work was done in connection with the building of the schools themselves, making it difficult to determine the amount of sanitation actually done.

### COMMUNITY SANITATION

The State Board of Health and the United States Public Health Service have been cooperating with the various Federal Work Relief Agencies in using relief labor to construct sanitary privies for homes and schools that do not have sanitary means of excreta disposal. The coordination of these agencies to reduce the number of deaths due to filth borne diseases began at the inauguration of Civil Works Administration and continued through the Emergency Relief Administration into the present Works Progress Administration.

The accomplishments of each of the Federal emergency work relief programs in community sanitation work have been much less than were anticipated, due to having a very poor grade of labor and to drastic reductions in allocating the funds that were requested for the projects. The number of privies constructed by the Federal Relief agencies in North Carolina since December 1, 1933, the beginning of the CWA Community Sanitation program, through June 30, 1936, is 77,005. Of this number 39,256 were constructed by the CWA, 22,833 by the ERA, and 14,916 by the WPA and NYA. During the period from July 1, 1934, to June 30, 1936, there were 22,709 privies built by the ERA and 14,916 built by the WPA and NYA, or a total of 37,625 privies were constructed in North Carolina during the biennium ending June 30, 1936. If all the privies built in this State since December 1, 1933, were placed side by side they would span a distance of 87.5 miles.

During the biennium ending June 30, 1936, approximately \$450,000 was spent in North Carolina by the Federal Government for labor used in constructing these privies. This occasioned an expenditure of approximately \$500,000 by the property owners for materials with which to construct the privies. The community sanitation projects have probably brought more private funds into circulation per dollar spent for relief labor by the Federal Government than any other project operated by the work relief agencies.

The average layman would probably believe that 77,005 privies are sufficient to completely sanitize North Carolina's rural homes. Unfortunately, this is not true, and the surface has just been scratched in community sanitation work in this State.

The extensive division of Home Demonstration work of North Carolina State College made a survey of 12 representative counties in North Carolina before the work relief privy construction program was started. The result of this survey shows that no toilet facilities at all were found at 33% of the rural homes and 53% had insanitary toilets. Thus, a total of 86% of the homes had unsatisfactory means of excreta disposal. The remaining 14% had improved toilets, but only 3% had water flushed toilets.

The 77,005 privies built since December 1, 1933, is only 21% of the estimated number of rural homes which is 375,000. These privies were built after the above survey was made. Therefore, one might add the 14% that had sanitary toilets before the Federal Works Relief Program started to the 21% that have been provided with sanitary toilets since, then arrive at a figure of 35% and assume that approximately one-third of the rural homes

in the State have sanitary means of excreta disposal. This assumption is not exactly true since the community sanitation work in many cases was done in small villages and population centers not classified as rural districts. It is probable that only about 20% of the rural and urban homes in the State have a sanitary means of disposing of the human excreta.

At the close of the biennium there were WPA and NYA Community Sanitation projects operating in 55 Counties and it is anticipated that there will be projects operating in approximately 80 Counties in the near future. These projects are employing about 1,000 men and are constructing approximately 3,000 privies per month.

Assuming that only 20% of the rural homes are sanitized, we now have approximately 300,000 homes without sanitary toilets. At the present rate of 3,000 privies per month being constructed, it will require 8 1-3 years to provide all of North Carolina's rural homes with a sanitary privy.

### MILK SANITATION

Considerable improvement in milk sanitation has been accomplished. The following table shows the progress that has been made in the last few years in securing the adoption of the Public Health Service Milk Ordinance, and it shows the number of towns having a U. S. Public Health Service milk rating of 90% or more.

Year	Number of Ordinance Towns	No. towns with milk ratings of 90% or more
Dec. 31, 1931 .....	74	0
Dec. 31, 1932 .....	86	6
Dec. 31, 1933 .....	97	24
Dec. 31, 1934 .....	104	29
Dec. 31, 1935 .....	105	33
June 30, 1936 .....	109	36

It is interesting and gratifying to note that only one other State, Texas, has more towns operating under the Ordinance, and that no State has a greater number of towns with a milk rating of 90% or more.

Health authorities are practically unanimous in advocating the use of properly pasteurized milk. This department recognizes the need for pasteurized milk and the absolute necessity that pasteurization be properly done. Because the ordinance has many detailed requirements concerning pasteurization, and since the ability to satisfy many of the requirements is influenced by the arrangement of the plant itself, this department has recommended that plans for all new pasteurizing plants be submitted for criticism and approval before construction is started. This procedure began in 1934 and has been followed with gratifying success. In a number of cases the size of the plant did not justify the employment of an engineer or architect, so this department has prepared rough plans for many individual plants. A series of stock plans for pasteurization plants is being developed. This procedure is resulting in buildings that fully comply with the ordinance.

The use of pasteurized milk is increasing rapidly. During the biennium, 17 new pasteurizing plants have been built and four remodeled. Six more are under construction at the close of the biennium.

In many cases, individual attention has been given to the small dairymen to enable them to build, enlarge, or rebuild their dairy barns and milk houses properly. Stock plans developed by this department have been of great assistance.

A general idea of the amount of improvement obtained in milk sanitation is given by an estimate which shows that in 1935 alone 99 dairy barns and 124 milk houses were built. The cost of these new barns, milk houses, and pasteurizing plants is estimated to be more than \$160,000.

### **MALARIA CONTROL DRAINAGE WORK**

Undoubtedly the most beneficial and far reaching malaria control program ever conducted in North Carolina has been carried on during the past two years through the co-operation of the State Board of Health, the U. S. Public Health Service, the Emergency Relief Administration, and the Works Progress Administration. Fifty-six North Carolina Counties have taken part in the malaria control drainage work program.

During the past biennium, malaria has been definitely on the increase in North Carolina in spite of every effort to check it. Not in years have so many requests for investigations of outbreaks been submitted to the North Carolina State Board of Health. It appears that the disease is gradually invading the western part of the State and has made its appearance in communities in which it has heretofore been absent. Buncombe and Henderson Counties have had small outbreaks in the proximity of several artificial lakes. Positive blood slides were obtained in Rutherford County, while practicing physicians report alarming increases of malaria in Mecklenburg, Cabarrus, Davie, and Catawba Counties.

It is gratifying to note that in spite of the general upward trend of malaria cases and deaths, numerous letters from practicing physicians report that there has been a decided decrease in malaria in the proximity of large malaria control drainage projects executed under the malaria control program which has been in operation throughout this biennium. Results reported in this manner from Lenoir, Robeson, Chowan, Harnett, and Onslow Counties have been especially gratifying.

Malaria in North Carolina is a non-reportable disease at this time and the best medium for ascertaining its prevalence is through the reports of co-operative physicians. Effort has been made during the past two years to gather more definite information, by making blood slide surveys in several counties and through investigations of the many individual complaints. Sufficient funds to finance such a survey on a large scale have not been available. However, it has been possible to make this determination along many proposed and incomplete malaria control drainage work projects with the assistance of interested local health officers. It is planned to make similar surveys adjacent to these projects after they have been com-

pleted long enough to give a reasonable check on the value of this drainage work. Positive results from four of Robeson County's proposed and incomplete projects were as follows: 35.7%, 9.0%, 28.5%, 27.8%. In Iredell County, 12.1%; two Lenoir County surveys showed 24% and 23.2% positive; in Pitt County, 4.9%; in Duplin County, 9.1%. All of the blood slides in the above mentioned Counties were taken during December, 1934, and January and February, 1935. The examinations were made by the U. S. Public Health Service technicians. In August, 1934, a complete blood slide survey was made in Camden County. The number of positive slides was found to be 10.1%.

A large part of the malaria control work has been educational. Specifications for a properly designed canal have been publicized; literature on malaria control has been made available to all people in North Carolina, and radio talks have been given on this subject. Several towns have adopted recommended anti-mosquito ordinances and employed full-time inspectors during the mosquito breeding months, to enforce these ordinances. Very gratifying results have been reported from these towns and it is hoped that many more North Carolina cities and towns will adopt similar ordinances for the purpose of controlling both malarial and pest mosquitoes.

Through local contributions and with some Federal help, the State Board of Health has been able to obtain dredging equipment for several of the larger malaria control projects. On one project in Rowan and Iredell Counties, three floating dredges and two draglines are being employed for dredging purposes along which is believed to be the largest malaria control drainage project in America at the present time. It consists of about 123 miles of machine dredging and about 100 miles of minor ditching and is approximately one-third completed at the close of this biennium. Provision for the completion of this project has been assured by Federal, State, and County agencies. Upon its completion the breeding places for the malaria carrying mosquito will be removed from an area affecting approximately 20,000 population, which showed a positive blood slide index of about twelve per cent. There are several other similar but smaller projects which are equally as important to the communities near them, which are well on the way to completion.

Although it has not been economically possible to undertake a large program for the application of larvicides and for screening and mosquito proofing, the District Supervisors of Malaria Control have aided many local health departments, towns, and individuals in such work. Several cities and towns have been prevailed upon to operate oiling and paris green dusting crews, and to purchase modern equipment for this purpose. It is sincerely hoped that this activity can and will become a more important phase of malaria control program in North Carolina. There are many places in the State where drainage of breeding areas are either impractical or economically prohibitive. In such places, screening and mosquito proofing is the only practical solution to the problem.

A summary of the results accomplished by the malaria control drainage work during the past two years is as follows:

Total number malaria control drainage projects approved	527
Total number malaria control drainage projects started	349
Total number malaria control drainage projects completed	293
Number counties in which drainage work has been done	56
Average number men working	2,166
Number man hours used	29,549,880
Approximate number of miles of canals or ditches either cleaned out or newly excavated	1,426
Number of acres of water surface and mosquito breeding areas drained	29,930
Total number of draglines used	10
Total number of dredges used	4
Approximate number of people benefited	690,000

### GENERAL

Health workers and relief workers have co-operated to the end that privies were built at schools where water-carried sewerage could not be provided. Much engineering consulting work has been furnished for state institutions and to the Highway Department for prison camps.

Many engineering drawings have been prepared or revised for dairy barns, milk houses, sterilizing facilities, pasteurizing plants, design suggestions for swimming pools, and plans for home water and sewerage systems. A great deal of time and energy were put into the improvement of the design of the pit privy, resulting in the development of a greatly improved privy with concrete slab and riser which can be provided with a regular toilet seat and lid.

Perhaps one of the best services to the sanitary inspectors of the State was rendered with the continuation of the Sanitarians' School-Conference. An excellent program was presented at the 1935 School-Conference which was attended by 111 people who registered, while in 1936 one hundred and nineteen registered.

During the biennium frequent inspections have been made of all shellfish shucking and packing plants. Conditions have been improved under which shellfish are prepared and packed for the market. Samples of water from shellfish producing areas are regularly subjected to bacteriological examination, as are specimens of the shellfish themselves. The production of crab meat has been brought under inspection for the first time. Areas where fishing is permitted are restricted.

From the standpoint of legislation one of the outstanding changes was that made in the Hotel and Cafe Law, which brought the sanitation of all cafes under the supervision of the State Board of Health. As a result of this new law the rules and regulations of the State Board of Health had to be amended, resulting in the publication of revised bulletins. The old law exempted eating establishments which had seating arrangements for less than 12 people, while under the new law all cafes must be inspected. Recently one County which was surveyed required the inspection of 186 eating estab-

lishments, only about 70 of which would have come under the provisions of the old law. Of the 186 inspected, 60 were closed because they had a rating of less than 70%, and only 21 were given a rating of Grade A. The amount of work required of the inspectors has been greatly increased because it is the small establishments that have the most difficulty in making a satisfactory rating, and it is necessary that the inspectors co-operate with the owners of these establishments more closely in order that the necessary sanitary improvements be made. After inspections are made a large percentage of the establishments which have been closed reopen as they have met the sanitary requirements. The improvements usually consist of remodeling, painting, screening, cleaning, installation of dish-washing equipment, plumbing facilities which include commodes and lavatories, the protection of water supplies, the provision of satisfactory means of excreta disposal, and many other items. Thus, the public is rendered a great service in that the eating establishments of the State are being made much safer and more sanitary. Incidentally, the amount of money expended in making such improvements is a figure running, no doubt, into hundreds of thousands of dollars.

The following statistics indicate numerically some of the activities of the Division of Sanitary Engineering during the biennium:

Private Sewage Disposal—

No. residential septic tanks inspected ..... 797

Hotels and Cafes—

No. hotels inspected ..... 532

No. cafes inspected ..... 4,104

Dairy Sanitation—

No. dairies inspected ..... 2,529

No. pasteurization plants inspected ..... 170

No. creameries inspected ..... 26

No. milk plants inspected..... 100

Bedding—

No. retail places inspected ..... 6,619

No. manufacturing plants inspected ..... 2,484

No. pieces of bedding condemned ..... 14,030

County Schools—

No. schools inspected ..... 1,859

Private Water Supplies—

No. private water supplies inspected ..... 1,589

Municipal Water Systems—

No. municipal water supplies inspected ..... 391

Municipal Sewerage Systems—

No. municipal sewerage systems inspected ..... 123

Jails—

No. jails inspected ..... 56



## County Prison Camps—

No. county prison camps inspected . . . . . 81

## Interstate Carrier Water Supplies—

No. interstate carrier water supplies reported to the U. S. Public  
Health Service . . . . . 195

## Swimming Pools—

No. swimming pools inspected . . . . . 18

## Summer Camps—

No. summer camps inspected . . . . . 45

## Privy Sanitation—

No. privies inspected . . . . . 85,000

No. privies built . . . . . 37,625

## DIVISION OF COUNTY HEALTH WORK

At the beginning of the biennium July 1, 1934, there were forty-seven Counties operating full-time local health services. Of this number, thirty-nine were under the direction of full-time health officers, and in the remaining eight the service was carried on under the immediate supervision of a nurse, sanitary inspector, or other health personnel.

On July 1, 1934, full-time health service was re-established in Bertie County, after having been discontinued in 1932. On December 15, 1934, full-time health service was re-established in Rutherford County, after having been discontinued the latter part of 1933. On August 1, 1934, a new health service was inaugurated in Duplin County. In April, 1935, a new district health service was organized in Avery and Yancey Counties, and on May 15, Watauga County became a part of the Avery-Watauga-Yancey District Health Department. On July 1, 1935, a new district health service was established in Orange and Person Counties. Person County was formerly under the direction of a public health nurse. On April 1, 1936, the Haywood-Jackson-Swain District Health Department was enlarged by adding Graham and Macon Counties. On June 15, 1936, a new health service was established in Harnett County. On June 1, 1935, health service was discontinued in Alleghany County. On January 15, 1936, the health service in Hyde County was discontinued.

The expansion of local health service during the biennium was made possible through the co-operation of several extra State agencies. The district health service established in Avery, Watauga, and Yancey Counties was made possible by the co-operation of the North Carolina State Board of Health, the Tennessee Valley Authority, the United States Public Health Service, and the local Counties. The development of the district health service in Orange and Person Counties was made possible by the co-operation of the participating Counties, the North Carolina State Board of Health, the University of North Carolina, and the Town of Chapel Hill. The other health services were initiated and financed in their beginning by allocations from the State Board of Health and the counties.

On November 1, 1934, North Carolina received financial aid from the United States Public Health Service through the Million Dollar Fund, amounting to \$53,817.85, during the period November 1, 1934, to June 30, 1935. There were thirty-seven counties participating in this fund. This money was used to increase the personnel in local health units by the addition of public health nurses, sanitary officers, and clerks. It enabled each unit which received aid to have a minimum personnel of at least one full-time local health officer, one public health nurse, one sanitary officer, and a clerk.

From July 1, 1935, to November 15, 1935, Federal funds were not available for aiding local health work in North Carolina. However, on November 16, 1935, Emergency Health Funds from the Public Health Service became available for re-establishing the services in those counties which had participated in the Million Dollar Fund. These Emergency Health Funds

were available from November 16, 1935, to January 31, 1936. The total amount received in North Carolina from this source was \$15,616.33.

On February 1, 1936, funds became available to North Carolina through the Social Security Act passed by the Congress of the United States. Since these funds were available for use primarily in the development of local health service in so far as the allocation from the United States Public Health Service was concerned, most of this money was handled through the Division of County Health Work. By means of this additional financial assistance, the personnel in local health units was further increased. Facilities were made available for the training of public health personnel. A regional training school was established at the University of North Carolina for the training of health officers and sanitation personnel. In order to provide field experience, a field training center was established in the health departments embracing the Orange-Person District Department and the Durham City-County Department. Special funds were allocated to the State of North Carolina by the United States Public Health Service for the training of additional personnel. The Conference of State and Territorial Health Officers, meeting with the United States Public Health Service, adopted standards for qualifications of personnel to be employed through Social Security Funds. Hence, the necessity for establishing training facilities for the training of new public health workers.

During the period February 1, 1936, to June 30, 1936, the sum of \$44,628.16 was distributed through the Division of County Health Work to local health units from Social Security Funds. In addition, \$2,325.00 was distributed to counties through the Division of County Health Work from Children's Bureau Funds.

In addition to this financial assistance, the Rockefeller Foundation contributed \$1,538.62 to five local health services during those periods of the biennium when Federal funds were not available. The Julius Rosenwald Fund contributed during the biennium \$1,310.00 to four counties.

At the end of the biennium, on June 30, 1936, public health service is in operation in fifty-three counties. This service is rendered by thirty-nine health officers, seven assistant medical officers, three dental officers, one hundred and three public health nurses, sixty sanitary officers, four laboratory technicians, fifty-three clerk-stenographers, and thirteen other health workers.

The per capita cost of health service in forty-four Counties with full-time health departments during the fiscal year 1934-35 was .274, as compared with .223 for the fiscal year 1933-34. The per capita cost for nursing or sanitary inspection health service during the fiscal year 1934-35 was .154, an increase of two cents over the thirteen cents for the fiscal year 1933-34. The per capita cost of health service in forty-seven Counties with full-time health service during the fiscal year 1935-36 was .315. The per capita cost for health service in nursing or sanitary inspection Counties for the fiscal year 1935-36 was .165.

This division has attempted to improve the type of health service rendered in local health units. Funds at our disposal have been used to add

additional personnel in order that more adequate health service might be provided and the standard of service be improved. There are a number of Counties not heretofore carrying full-time health service that are ready to be organized on a full-time basis. Wherein the local people were interested to the extent of being willing to make an appropriation toward financing a local service, we have co-operated. These developments have been made by inaugurating new health services on the County unit plan, or by the development of district health departments in those areas having low assessed valuations and sparsely settled communities. Two such district health plans were organized during the biennium.

The type of service rendered in local health departments follows closely the outline of the practices and services approved by the North Carolina State Board of Health. The idea that public health work has to deal with preventive medicine rather than curative medicine has been stressed. Many of our people do not realize that the preventive end is the main purpose of a local health service.

A revised monthly report of county health activities was prepared and placed in effect as of January 1, 1936.

Pertinent data concerning local health departments is shown in Table No. 1-A and Table No. 1-B.

The amount of work performed during the biennium by the fifty-three local health departments in operation on June 30, 1936, is recorded in Table No. 2-A and Table No. 2-B.

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DETAILED STATISTICS ON ACTIVITIES OF  
DIVISION OF COUNTY HEALTH WORK

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TABLE No. 1-A—DATA ON FULL-TIME COUNTY AND DISTRICT

County or District	1930 Popula- tion	Date of Organ- ization	Total Budget	
			Amount	Per Capita
Avery-Watauga-Yancey.....	41,454	1935	\$ 5,321.24	.128
Beaufort.....	35,026	1923	7,320.00	.209
Bertie.....	25,844	1934	8,375.00	.324
Bladen.....	22,389	1921	4,675.00	.209
Buncombe (exclusive of Asheville).....	47,744	1913	31,475.00	.659
Cabarrus.....	44,331	1919	8,322.41	.188
Columbus.....	37,720	1921	5,558.33	.147
Cumberland.....	45,219	1919	11,801.28	.261
Davidson.....	47,865	1917	9,887.02	.207
Duplin.....	35,103	1934	7,552.66	.215
Durham.....	67,196	1913	47,989.00	.714
Edgecombe (exclusive of Rocky Mount).....	37,872	1919	8,318.51	.220
Forsyth-Stokes-Yadkin (exclusive of Winston-Salem).....	76,707	1913-31	38,140.92	.497
Franklin.....	29,456	1930	4,454.00	.151
Gaston.....	78,093	1928	11,982.45	.153
Granville.....	28,723	1919	7,138.87	.249
Guilford (exclusive of Greensboro and High Point).....	42,696	1911	14,128.00	.331
Halifax.....	53,246	1919	12,321.54	.231
Haywood-Jackson-Swain.....	57,360	1934	19,743.52	.344
Hyde (Ocracoke).....	547	1932	1,057.50	1.933
Lenoir.....	35,716	1917	7,855.49	.220
Mecklenburg (exclusive of Charlotte).....	45,296	1918	15,115.00	.334
Moore.....	28,215	1928	6,496.66	.230
Nash (exclusive of Rocky Mount).....	41,392	1915	5,268.82	.127
New Hanover.....	43,010	1913	29,389.00	.683
Northampton.....	27,161	1917	6,133.33	.226
Pitt.....	54,166	1917	12,167.03	.223
Randolph.....	36,259	1927	7,653.31	.211
Richmond.....	34,016	1924	8,531.14	.251
Robeson.....	66,512	1912	10,075.00	.152
Rowan.....	56,665	1918	10,530.00	.186
Rutherford.....	40,452	1924	5,795.19	.143
Sampson.....	40,082	1913	8,814.15	.220
Surry.....	39,749	1919	7,967.55	.201
Vance.....	27,294	1920	6,976.27	.256
Wake.....	91,757	1918	25,674.26	.271
Wayne.....	53,013	1920	12,360.01	.233
Wilkes.....	36,162	1920	6,453.42	.179
Wilson.....	44,914	1916	8,700.00	.194
Totals.....	1,699,722		\$467,517.28	.275

## COUNTIES WITH NURSE OR SANITARY INSPECTOR

Alleghany.....	7,186	1930	\$ 790.00	.110
Brunswick.....	15,818	1924	2,050.00	.130
Caldwell.....	28,016	1931	1,860.00	.066
Craven.....	30,665	1921	5,607.08	.183
Pamlico.....	9,299	1923	2,545.67	.274
Person.....	22,039	1929	2,818.24	.129
Polk.....	10,216	1931	2,400.00	.235
Totals.....	123,239		\$ 18,100.99	.147
GRAND TOTALS.....	1,822,961		\$ 485,618.27	.266

\*Non-Medical Health Officer. †Part-time Health Officer. v-Veterinarian (Included).

t-Technician (Included). b-Bacteriologist (Included). c-Clinician (Included). d-Director.

## HEALTH SERVICES—NORTH CAROLINA—FISCAL YEAR 1934-35

Source of Funds and Amounts						Whole-Time Personnel						
Local Appropriation	Per Capita	State Allotment	Per Capita	Other Agencies	Per Capita	Health Officer	Other Medical Officer	Nurse	Inspector	Clerk and Other	Det. Wks.	
\$ 780.00	.019	\$ 1,673.75	.040	\$ 2,867.49	.069	1	1	3	2	1	-----	
4,350.00	.124	1,180.00	.012	1,490.00	.043	1	0	1	1	1	12	
4,680.00	.181	1,170.00	.045	2,525.00	.098	1	0	1	1	1	20	
3,740.00	.167	935.00	.042	-----	-----	1	0	1	0	0	20	
30,600.00	.641	875.00	.018	-----	-----	1	0	2	1	1	32	
5,782.11	.131	1,380.00	.031	1,160.00	.026	1	0	1	1	1	16	
2,975.00	.079	525.00	.014	2,058.33	.054	1	0	1	1	1	-----	
9,131.34	.202	700.00	.015	1,969.94	.044	1	0	3	1	1	-----	
7,227.02	.151	1,500.00	.032	1,160.00	.024	1	0	1	1	1	20	
4,450.00	.127	1,036.00	.029	2,066.66	.059	1	0	1	1	1	-----	
46,489.00	.692	1,500.00	.022	-----	-----	1	1	9	5	4	43	
5,751.18	.152	1,374.00	.037	1,193.33	.031	1	0	1	1	1	-----	
30,337.62	.395	1,775.00	.023	6,028.30	.079	1	1	9	2	2	20	
3,074.00	.104	1,380.00	.017	-----	-----	1	0	1	1	1	-----	
9,369.95	.120	1,500.00	.019	1,112.50	.014	1	0	2	1	1	-----	
4,650.00	.162	1,380.00	.048	1,108.87	.039	1	0	1	1	1	-----	
12,628.00	.296	1,500.00	.035	-----	-----	1	0	2	1	1	40	
9,311.54	.175	1,500.00	.028	1,510.00	.028	1	0	3	2	1	-----	
6,213.52	.108	6,580.00	.122	6,550.00	.114	1	1	5	3	2	-----	
-----	-----	480.00	.877	577.50	1.056	1	0	0	0	0	-----	
6,330.49	.177	625.00	.018	900.00	.025	1	0	1	1	1	-----	
13,615.00	.301	625.00	.014	875.00	.019	1	1	3	1	4	34	
1,080.00	.144	900.00	.032	1,516.66	.054	1	0	1	1	1	-----	
4,500.00	.109	768.82	.018	-----	-----	†	1	0	1	1	20	
27,769.00	.646	625.00	.015	995.00	.022	1	1	4	8	2	-----	
3,600.00	.133	900.00	.033	1,633.33	.060	1	0	1	1	1	-----	
9,462.86	.174	1,404.17	.026	1,300.00	.023	1	0	2	1	1	20	
3,949.65	.109	987.00	.027	2,716.66	.075	1	0	1	1	1	35	
5,802.80	.171	1,238.34	.036	1,490.00	.044	1	0	2	1	1	-----	
5,725.00	.086	1,500.00	.023	2,850.00	.043	1	0	2	1	1	20	
9,030.00	.159	1,500.00	.027	-----	-----	1	0	1	1	1	23	
3,697.19	.091	875.00	.022	1,223.00	.030	1	0	1	1	1	22	
4,305.00	.108	1,500.00	.037	3,009.15	.075	1	0	2	1	1	12	
4,370.87	.110	1,500.00	.038	2,096.68	.053	1	0	1	1	1	-----	
3,849.61	.141	1,080.00	.040	2,046.66	.075	1	0	1	1	1	-----	
24,174.26	.255	625.00	.007	875.00	.009	1	0	3	3	2	52	
10,660.01	.201	1,500.00	.028	200.00	.004	1	0	1	2	1	20	
4,016.46	.111	900.00	.025	1,536.66	.043	1	0	1	1	1	-----	
7,200.00	.161	1,265.00	.028	235.00	.005	1	0	1	1	1	-----	
\$ 357,678.48	.210	\$ 50,962.08	.030	\$ 58,876.72	.035	39	6	78	56	47	481	
AS DIRECTOR OF LOCAL HEALTH PROGRAM												
\$ 115.00	.016	\$ 275.00	.038	\$ 400.00	.056	0	0	1	0	0	-----	
1,900.00	.120	150.00	.010	-----	-----	0	0	1	0	0	-----	
1,470.00	.052	390.00	.014	-----	-----	0	0	0	1	0	-----	
1,446.00	.145	1,161.08	.038	-----	-----	0	0	1	2	0	12	
2,217.67	.239	328.00	.035	-----	-----	0	0	1	0	1	-----	
2,548.24	.116	300.00	.013	-----	-----	0	0	1	0	1	-----	
-----	-----	420.00	.041	1,980.00	.194	0	1	1	0	0	-----	
\$ 12,696.91	.103	\$ 3,024.08	.025	\$ 2,380.00	.019	0	1	6	3	2	12	
\$ 370,375.39	.203	\$ 53,986.16	.030	\$ 61,256.72	.033	39	7	84	59	49	193	

TABLE No. 1-B—DATA ON FULL-TIME COUNTY AND DISTRICT

County or District	1930 Popula- tion	Date of Organ- ization	Total Budget	
			Amount	Per Capita
Avery-Watauga-Yancey .....	41,454	1935	\$ 23,404.49	.564
Beaufort .....	35,026	1923	8,742.89	.250
Bertie .....	25,844	1934	9,177.50	.355
Buncombe (exclusive of Asheville) .....	47,744	1913	20,635.00	.432
Cabarrus .....	44,331	1919	12,320.55	.278
Columbus .....	37,720	1921	7,940.00	.210
Cumberland .....	45,219	1919	14,710.45	.325
Davidson .....	47,865	1917	8,670.45	.181
Duplin .....	35,103	1934	6,465.00	.184
Durham .....	67,196	1913	49,310.33	.734
Edgecombe (exclusive of Rocky Mount) .....	37,872	1919	10,356.00	.273
Forsyth-Stokes-Yadkin (exclusive of Winston-Salem) ..	76,707	1913-31	41,652.65	.543
Franklin .....	29,456	1930	5,060.00	.172
Gaston .....	78,093	1928	14,563.66	.186
Granville .....	28,723	1919	9,754.29	.340
Guilford (exclusive of Greensboro and High Point) ..	42,696	1911	15,143.60	.355
Halifax .....	53,246	1919	14,055.29	.264
Haywood-Jackson-Swain-Macon-Graham .....	76,873	1934-36	27,405.68	.356
Hyde (Ocracoke) .....	547	1932	1,080.00	1.974
Lenoir .....	35,716	1917	8,587.50	.240
Mecklenburg (excluding Charlotte) .....	45,296	1918	16,042.36	.354
Moore .....	28,215	1928	5,000.00	.177
Nash (exclusive of Rocky Mount) .....	41,392	1915	7,831.00	.189
New Hanover .....	43,010	1913	39,508.33	.918
Northampton .....	27,161	1917	6,854.17	.252
Orange-Person .....	43,210	1935	20,769.50	.481
Pitt .....	54,466	1917	12,891.00	.237
Randolph .....	36,259	1927	8,537.81	.235
Richmond .....	34,016	1924	11,092.00	.326
Robeson .....	66,512	1912	12,345.57	.186
Rowan .....	56,665	1918	11,119.00	.196
Rutherford .....	40,452	1924	8,865.00	.219
Sampson .....	40,082	1913	9,638.23	.240
Surry .....	39,749	1919	8,165.89	.205
Vance .....	27,294	1920	8,226.41	.301
Wake .....	94,757	1918	27,677.49	.292
Wayne .....	53,013	1920	13,100.00	.247
Wilkes .....	36,162	1920	7,071.39	.196
Wilson .....	44,914	1916	9,366.54	.208
Totals .....	1,740,056		\$ 553,137.02	.318

## COUNTIES WITH NURSE OR SANITARY INSPECTOR

Brunswick .....	15,818	1924	2,085.00	.132
Caldwell .....	28,016	1931	1,830.00	.065
Craven .....	30,665	1921	5,557.50	.181
Pamlico .....	9,299	1923	2,727.23	.293
Polk .....	10,216	1931	2,400.00	.235
Totals .....	94,014		\$ 14,599.73	.155
GRAND TOTALS .....	1,834,070		\$ 567,736.75	.309

\*Non-Medical Officer. †Part-time Health Officer. v-Veterinarian (Included). t-Technician (Included).  
 t-Technician (Included). b-Bacteriologist (Included). c-Clinician (Included). D-Director.  
 cp-County Physician. d-Dentist.



## HEALTH SERVICES—NORTH CAROLINA—FISCAL YEAR 1935-36

Source of Funds and Amounts						Whole-Time Personnel					
Local Appropriation	Per Capita	State Allotment	Per Capita	Other Agencies	Per Capita	Health Officer	Other Medical Officer	Nurse	Inspector	Clerk and Other	Doc. Wks.
\$ 4,783.07	.115	\$ 5,137.50	.123	\$ 13,483.92	.325	2		3	2	3	29
5,749.98	.164	1,560.00	.041	1,432.91	.041	1		1	1	1	20
5,780.00	.224	1,260.00	.048	2,137.50	.082	1		2	4	1	
19,075.00	.399	1,560.00	.033			1		2	2	2	36
9,025.13	.203	1,560.00	.035	1,735.42	.039	1		2	2	1	32
5,100.00	.135	863.05	.023	1,976.95	.052	1		2	1	1	
10,350.45	.229	1,560.00	.034	2,800.00	.062	1		3	1	1	20
5,853.78	.122	1,440.00	.030	1,376.67	.028	1		1	1	1	25
5,385.57	.153	1,080.00	.031			1		1		1	
44,637.00	.664	1,560.00	.023	3,113.33	.047	1	*v 2	10	4	dt 5	
8,140.00	.215	1,560.00	.041	656.00	.017	1		2	1	1	20
31,698.50	.413	4,060.00	.053	5,894.15	.076	2		12	2	e 5	20
3,800.00	.129	1,260.00	.043			1		1		1	
11,736.49	.150	1,560.00	.020	1,267.17	.016	1		3	1	1	20
7,040.13	.245	1,560.00	.054	1,154.16	.040	1		2	1	1	20
13,583.60	.318	1,560.00	.036			1		2	1	2	40
10,861.55	.204	1,560.00	.029	1,633.74	.031	1		3	2	1	20
8,033.57	.105	7,937.44	.103	11,434.67	.149	3		6	4	t 6	
		480.00	.880	600.00	1.096	1					
6,600.00	.185	1,440.00	.040	547.50	.015	1		2	1	1	
14,399.03	.318	1,560.00	.034	83.33	.002	1		3	1	epdeb6	
4,100.00	.145	900.00	.032			1		1		1	
6,751.00	.163	1,080.00	.026			†		1	1	1	20
37,923.33	.882	1,560.00	.036	25.00	.0035	2		4	8	t 2	20
4,750.00	.174	960.00	.035	1,154.17	.042	1		1	1	1	
6,000.00	.139	6,009.00	.139	8,769.50	.292	2	1	3	1	2	11
10,006.00	.184	1,560.00	.028	1,325.00	.024	1		3	1	1	20
5,464.48	.150	1,260.00	.035	1,813.33	.050	1		2	1	1	
8,716.93	.257	1,560.00	.046	785.07	.023	1		2	1	1	20
8,810.57	.132	1,560.00	.023	1,975.00	.030	1		3	1	1	20
9,619.00	.170	1,560.00	.027			1		1	1	1	25
5,400.00	.134	1,440.00	.035	2,025.00	.050	1		2	1	1	23
4,980.72	.124	1,520.00	.038	3,137.51	.078	1		2	1	1	12
4,497.22	.113	1,440.00	.036	2,228.67	.056	1		1	1	1	
4,595.58	.168	1,080.00	.039	2,550.83	.093	1		2	1	1	20
25,742.49	.272	1,560.00	.016	375.00	.004	1		4	3	dt 3	
11,420.00	.215	1,560.00	.029	120.00	.002	1		1	2	1	20
4,651.22	.128	1,106.00	.031	1,314.17	.036	1		1	1	1	
7,926.34	.176	1,440.00	.032			1		1	1	1	
\$ 403,007.36	.232	\$ 71,203.99	.041	\$ 78,925.67	.045	44	3	98	59	64	513

## AS DIRECTOR OF LOCAL HEALTH PROGRAM

\$ 1,935.00	.122	\$ 150.00	.009	\$				1			
1,470.00	.052	300.00	.011	60.00	.002				1		
4,446.00	.145	1,111.50	.036					1	2		13
2,367.23	.254	360.00	.038					1		D 1	
		420.00	.041	1,980.00	.193			1			
\$ 10,218.23	.108	\$ 2,311.50	.025	\$ 2,040.00	.022			4	3	1	13
\$ 413,225.59	.225	\$ 73,545.49	.040	\$ 80,965.67	.044	44	3	102	59	65	526

TABLE No. 2-A—COMPILATION OF FULL-TIME COUNTY HEALTH  
DEPARTMENT ACTIVITIES  
January - June, 1936

## VITAL STATISTICS

	White	Colored	Indian	Total
Live births.....	12,021	5,980	278	18,279
Still births.....	298	335	13	646
Deaths under 1 year.....	459	371	8	838
Deaths under 1 month.....	405	281	5	691
Puerperal deaths.....	50	24	-----	74
Total deaths.....	5,332	3,401	44	8,777
Deaths from selected communicable diseases:				
Typhoid and paratyphoid fever.....	6	5	-----	11
Measles.....	1	2	-----	3
Scarlet fever.....	5	-----	-----	5
Whooping cough.....	3	3	-----	6
Diphtheria.....	16	4	-----	20
Tuberculosis, all forms.....	198	258	2	458
Diarrhea and Enteritis under 2.....	25	14	-----	39
Number Vital Statistics visits.....	220	92	-----	312

## CASES OF SELECTED REPORTABLE DISEASES

	Reported						Total
	Before Death		After Death		Indian		
	White	Colored	White	Colored	Before Death	After Death	
Diphtheria.....	188	10	5		2		205
Dysentery, bacillary.....							
Endemic typhus.....	5						5
Gonorrhea.....	315	243	xx	xx	15		573
Measles.....	1,344	52		1	4		1,401
Meningococcus meningitis.....	51	21	6	2	2		82
Pellagra.....	270	88	3	1	4		366
Polioimyelitis.....	8	3					11
Rocky Mountain spotted fever.....	6	1					7
Scarlet fever.....	365	15					380
Septic sore throat.....	13	3			1		17
Smallpox.....		2					2
Syphilis.....	478	1,264			23		1,765
Tuberculosis.....	495	351	5	6			857
Typhoid and paratyphoid fever.....	44	14			1		59
Undulant fever.....	14						14
Whooping cough.....	260	98		1		4	363
Other.....	2,853	497	14	1	326	8	3,699

## ACUTE COMMUNICABLE DISEASES

	White	Colored	Indian	Total
Field visits by health department personnel:				
Typhoid or paratyphoid fever.....	95	42	2	139
Measles.....	1,502	37	3	1,542
Scarlet fever.....	567	13		580
Whooping cough.....	217	57		274
Diphtheria.....	344	25	1	370
All other.....	2,266	258	1	2,525
Investigative visits.....	1,438	275	11	1,724
Diagnostic services: consultations.....	460	99		559
Immunizations:				
Typhoid immunizations completed.....	47,187	18,350	103	68,019
Smallpox vaccinations.....	16,585	9,718	390	26,693
Diphtheria immunizations under 5.....	6,451	2,620	107	9,178
Diphtheria immunizations 5 and over.....	3,825	1,193	4	5,022
Schick tests—(1) positive.....	1,306	128	38	1,472
(2) negative.....	4,268	282	83	4,633
Other.....	629	128	26	783

## VENEREAL DISEASES

	White	Colored	Indian	Total
New individuals admitted to clinics.....	510	1,974	19	3,178
Old patients seen first time this year.....	836	1,888	5	2,729
Individuals formally referred to private physicians.....	292	385	1	678
Individuals formally referred from physicians.....	404	1,104		1,508
Visits to clinics for diagnosis and treatment.....	10,839	21,406	146	52,433
Cases discontinuing treatment.....	519	1,052	8	2,331
Discontinued cases returned.....	116	490	2	2,571
Treatments:				
For syphilis.....	6,587	17,990	82	38,604
For gonorrhea.....	3,125	1,023	30	8,118
For chaneroid.....	72	79		1,677
Field visits.....	295	707	1	1,008

## TUBERCULOSIS

	White	Colored	Indian	Total
New cases under supervision.....	609	409	7	1,025
New contacts under supervision.....	1,118	668	43	1,829
New suspects under supervision.....	1,674	428	6	2,108
Old cases seen first time this year.....	537	228	11	776
Number clinics held.....	309	149	1	459
Visits to clinics for diagnosis or treatment.....	4,208	1,831	150	6,189
Field visits.....	3,264	1,739	14	5,017
Office visits in lieu of home visits.....	682	307	15	1,006
Individuals under 20 tuberculin tested—(1) positive.....	3,192	1,737	82	5,011
(2) negative.....	11,552	1,876	245	13,673
Patients X-rayed.....	3,712	1,002	129	4,843
Patients hospitalized.....	153	109	1	263
Attendance preventoria and open air classes.....	138	5	7	150

## MORBIDITY SERVICE AND GENERAL HEALTH SUPERVISION

	White	Colored	Indian	Total
New individuals given morbidity care .....	4,554	1,952	239	6,745
Old patients seen first time this year .....	1,434	698	1	2,133
Field visits .....	10,821	1,819	9	12,679
Individuals given health examinations .....	5,526	1,565	85	7,176
Individuals referred for medical care .....	2,821	529	196	3,546

## MATERNITY SERVICE

	White	Colored	Indian	Total
New individuals under supervision before 5th month .....	603	736	69	1,408
New individuals under supervision after 5th month .....	954	1,460	80	2,494
New individuals under supervision postpartum .....	994	670	24	1,688
Old cases seen first time this year .....	301	242	15	558
Visits by antepartum cases to medical conferences .....	757	1,358	123	2,238
Antepartum cases referred for medical care .....	455	382	41	878
Field visits by nurses to antepartum cases .....	2,513	2,203	99	4,815
Field visits by nurses to postpartum cases .....	1,918	1,265	29	3,212
Office nursing visits in lieu of field visits .....	434	540	58	1,032
Prenatal classes held .....	103	169	17	289
Total attendance at prenatal classes .....	409	1,471	131	2,011
Number given full course prenatal literature .....	1,326	1,546	133	3,005

## MIDWIFE CONTROL

	White	Colored	Indian	Total
Midwife classes held .....	28	65	1	125
Total attendance at midwife classes .....	88	491	17	611
Midwives given physical examination .....	68	334	12	414
Midwives completing standard course .....	33	264	12	309
Field visits for supervision .....	192	876	13	1,081
Office conferences with midwives .....	165	826	31	1,022

## INFANT HYGIENE

	White	Colored	Indian	Total
New infants under supervision .....	3,404	1,608	66	5,078
Old cases seen first time this year .....	1,095	575	8	1,678
Visits to medical conferences .....	1,590	1,463	19	3,072
Infants examined by physician .....	1,036	520	24	1,580
Infants referred for medical care .....	566	561	7	1,134
Consultations with parents .....	3,982	1,782	96	5,860
Field visits by nurses .....	6,358	3,083	32	9,473

## PRESCHOOL HYGIENE

	White	Colored	Indian	Total
New children under supervision.....	11,598	1,548	131	13,277
Old cases seen first time this year.....	1,725	289	190	2,204
Visits to medical conferences.....	4,921	1,202	107	6,230
Children examined by physician.....	14,917	1,687	106	16,701
Children referred for medical care.....	6,559	884	54	7,497
Consultations with parents.....	9,683	1,037	130	10,850
Field visits by nurses.....	6,198	990	15	7,203
Children having physical defects.....	7,461	1,038	51	8,550
Children having correctible defects.....	7,790	953	55	8,798
Children having defects corrected:				
(1) Tonsils.....	627	69	4	700
(2) Eyes.....	83	3		86
(3) Teeth.....	2,064	15		2,079
(4) Other.....	177	28	1	206

## SCHOOL HYGIENE

	White	Colored	Indian	Total
Pupils examined by physicians.....	24,463	3,671	171	28,305
Pupils examined by physician, parent present.....	914	229	1	1,144
Hours spent in examinations.....	2,070 5-6	311 3-4	2	2,384 7-12
Pupils tested by nurse.....	46,313	20,832	433	67,578
Hours spent in testing.....	3,746 2-3	1,986 1-2	10	6,053 1-6
Pupils inspected by physician or nurse.....	69,520	27,032	1,129	99,871
Pupils examined by dentist.....	33,840	6,112	13	42,416
Pupils treated by dentist.....	18,010	5,353	404	24,767
Total number of dental operations.....	56,983	13,986		75,585
Pupils having physical defects.....	25,356	9,604	99	35,725
Pupils having correctible defects.....	28,527	9,545	44	38,116
Pupils referred for medical care.....	25,354	6,309	248	32,147
Pupils having defects corrected (recorded):				
(1) Tonsils.....	2,399	184	11	2,763
(2) Eyes.....	607	37	7	686
(3) Other.....	4,397	1,343	119	6,032
Classroom health talks.....	2,274	757	2	3,108
Field visits.....	10,072	2,488	17	12,845

## GENERAL SANITATION

	White	Colored	Indian	Total
Water supplies improved .....	496	183	-----	682
Sewer connections—(1) new .....	684	115	-----	851
(2) restored .....	138	348	-----	718
Pit privies approved (new)—(1) rural .....	3,609	709	63	4,673
(2) urban .....	1,654	967	15	2,708
Pit privies approved (restored)—(1) rural .....	844	141	1	1,014
(2) urban .....	516	226	4	813
Other approved excreta disposal units—(1) new .....	300	56	2	372
(2) restored .....	152	11	4	175
Homes mosquito-proofed, approved .....	224	37	-----	261
Anopheline breeding places eliminated or controlled .....	1,315	306	-----	1,632
Field visits for inspection:				
Water supplies .....	5,853	2,711	-----	9,199
Excreta disposal .....	14,827	6,517	139	22,817
Schools .....	1,234	633	12	1,897
Hotels and camps .....	709	49	-----	802
Mosquito breeding .....	508	83	-----	616
Complaint investigations .....	2,068	1,008	2	3,208
Other .....	11,732	10,088	-----	28,386
Nuisances corrected (recorded) .....	1,917	1,077	-----	3,523

## PROTECTION OF FOOD AND MILK

	White	Colored	Indian	Total
Food handling places under supervision:				
(1) Cafes .....	1,267	169	4	1,488
(2) Markets .....	707	80	2	789
Dairies under supervision .....	593	3	-----	596
Pasteurizing plants under supervision .....	34	-----	-----	34
Grade A retail dairies and plants .....	292	5	-----	297
Field visits for inspection:				
Food handling establishments:				
(1) Cafes .....	6,568	966	16	7,666
(2) Markets .....	4,886	488	-----	5,378
Dairy farms .....	3,445	7	-----	3,600
Pasteurizing plants .....	913	-----	-----	913
Food and milk handlers examined .....	2,088	1,508	1	3,704
Cows tuberculin tested .....	5,239	-----	-----	7,401
Cows tested for Bang's disease .....	10,821	100	-----	11,793
Locally slaughtered animals examined .....	6,983	150	-----	9,295

## PUBLIC HEALTH INSTRUCTION

	White	Colored	Indian	Total
Lectures (including motion pictures).....	323	116	1	497
Attendance at Lectures (including motion pictures).....	50,336	12,506	150	63,063
Informal health talks.....	1,047	279	7	1,379
Attendance at informal health talks.....	45,970	12,761	160	60,331
Newspaper articles published.....	802	112	3	1,336
Circular letters sent out.....	35,005	6,319	964	45,216
Bulletins, posters, etc., distributed.....	76,620	16,640	601	101,188
Health exhibits and special demonstrations.....	397	37	1	722
Health classes conducted.....	443	235	43	755
Attendance at health classes conducted.....	6,889	646	359	13,786

## LABORATORY

	Positive	Negative	Total
Specimens examined:			
Typhoid—(1) widal.....	16	123	139
(2) blood cultures.....	6	30	36
(3) stool and urine.....	69	516	600
Diphtheria.....	56	523	588
Tuberculosis.....	153	490	664
Syphilis.....	3,501	10,750	14,257
Intestinal parasites.....	2,937	6,181	9,814
Gonorrhea.....	728	1,465	2,950
Malaria.....	116	578	694
Rabies.....	59	35	103
Urine.....	xxxx	xxxx	4,813
Water—public supply.....	xxxx	xxxx	2,157
Water—rural or semi-public.....	xxxx	xxxx	1,331
Milk.....	xxxx	xxxx	3,465
All other.....	120	1,272	2,046

## ADMINISTRATION

Staff conferences.....	1,221
Meetings with official bodies.....	728
Court proceedings instituted.....	418

	Health Officer	Nurse	Inspector	Total
Meetings with non-official bodies.....	459	424	357	1,240
Conferences with officials.....	2,584	1,677	1,904	6,165
Conferences with physicians.....	2,254	2,570	342	5,166
Other conferences.....	8,722	9,053	6,090	23,865
Visits to schools.....	2,560	8,892	1,647	13,099
Hours in office.....	20,732½	31,236½	12,404½	64,373½
Hours in field.....	21,460	64,242¼	43,184½	128,886¾
Miles traveled.....	222,194	398,051	314,592	934,837
Not-home visits.....	132	2,564	1,286	3,982
Days off duty.....	180½	495½	180½	856½

MONTHLY REPORT OF COUNTY PHYSICIAN  
January - June, 1936

	White	Colored	Indian	Total
Number of patients treated or examined at home .....	1,428	617	1	2,049
Number of home visits .....	1,942	1,180	1	3,126
Number of patients treated or examined in office .....	11,476	11,505	168	23,683
Total visits of patients to office .....	13,085	15,189	215	29,001
Number of visits to county jail .....	675	541	-----	2,019
Number of patients treated or examined in county jail .....	3,122	2,873	61	6,229
Number of visits to county home .....	568	316	-----	1,855
Number of patients treated or examined in county home .....	6,990	4,108	52	11,404
Number of visits to County T. B. Hospital .....	171	56	-----	367
Number of patients treated or examined in County T. B. Hospital .....	1,292	343	-----	1,640
Number of completed anti-rabic treatments .....	108	10	1	123
Number of treatments, hookworm .....	601	251	-----	853
Number of examinations, prisoners .....	1,287	1,142	55	2,724
Number of examinations, teachers .....	142	66	1	209
Number of examinations, child for industry .....	258	43	-----	314
Number of examinations by court order .....	124	26	-----	164
Number of examinations for admission to institution .....	452	206	18	709
Number of examinations for lunacy .....	282	142	3	456
Number of examinations, postmortem .....	18	27	-----	47



TABLE No. 2-B—COMPILATION OF FULL-TIME COUNTY HEALTH DEPARTMENT ACTIVITIES

JULY, 1934, TO DECEMBER, 1935

POPULATION						
Age	Indian	White	Colored	Urban	Rural	Total
Under one year.....	445	31,580	13,979	8,439	36,681	45,120
One to five years.....	1,816	138,048	62,888	39,457	163,507	202,964
Six to fifteen years.....	4,342	333,213	155,223	100,644	380,265	480,909
Sixteen years and over.....	7,570	841,097	333,651	277,143	978,828	1,255,971
Totals.....	14,198	1,335,020	585,941	425,682	1,568,281	1,993,963

VITAL STATISTICS				
	Indian	White	Colored	Total
Births, live.....	802	24,229	13,328	38,359
Births, still.....	53	590	806	1,449
Deaths, total.....	155	9,400	6,333	15,888
Deaths, puerperal.....	—	88	69	157
Deaths under 1 month of age.....	12	876	583	1,471
Deaths under 1 year of age.....	17	977	776	1,770

## REPORTABLE DISEASES

	Reported by—					White	Colored	Indian	No. Quarantined		Number of Deaths	Total Number Visits to Cases	Number Cases Hospitalized
	M. D.'s.	Health Officer	Nurse	Teacher	Other				By Mail	By Visit			
Chancroid.....	78	9			1	46	43		3	8	2	15	3
Diphtheria.....	1,506	67	50	9	4	1,340	172	5	186	1,303	82	3,053	70
Epidemic Typhus.....	23	13				25	11			14		14	
Gonorrhea.....	1,245	469	2		9	790	709	14	33	14	1	48	8
Influenza.....	1,539	50	132	34	5	1,118	118		91	29	27	142	
Measles.....	2,107	4,613	628	383	1,844	6,808	2,710		1,864	5,649	13	6,161	52
Meningococcus Meningitis.....	68	4				41	27		3	40	22	82	20
Polio.....	427	152	238		67	796	174	6	16	34	20	699	5
Polomyelitis.....	429	10				313	95	18	32	360	10	700	80
Rocky Mtn. Spotted Fever.....	39					37	1		7	21		54	1
Scarlet Fever.....	1,983	118	119	5	31	2,022	105	8	173	1,864	7	2,784	8
Smallpox.....	11	2				7	5		1	7		21	
Syphilis.....	3,570	1,529	212		4	941	3,861	33	13	11	17	307	12
Tuberculosis.....	752	74	60		20	473	414	4	40	47	231	2,090	116
Typhoid Fever.....	570	25	22		1	312	252	10	23	494	41	945	64
Undulant Fever.....	20				15	20	14		15	3		4	2
Whooping Cough.....	1,971	1,119	2,105	217	3,360	7,094	1,401	5	1,297	5,882	29	7,701	41
Others.....	1,141	459	724	157	1,196	2,717	539	2	389	2,360	432	3,102	14

## CONTROL PRACTICES

	Number Persons Examined			Number Examinations Made		
	Indian	White	Colored	Negative	Positive	Total
Diphtheria—(1) Cultures.....	7	3,363	380	3,752	364	4,117
(2) Virulence Tests.....		5	1	7	1	8
Typhoid Fever—(1) Blood culture.....	7	139	69	183	35	225
(2) Urine culture.....		122	60	176	11	190
(3) Stool culture.....		777	459	1,169	60	1,272
(4) Agglutination test.....	8	193	58	225	39	268
Undulant Fever.....		132	16	142	3	148
Typhus or Rocky Mountain Spotted Fever.....	4	22	4	22	5	30
Meningococcus Meningitis.....		194	8	187	14	211
Malaria.....	257	2,100	1,286	1,388	447	3,728
Syphilis (Serological tests).....	390	10,690	18,870	25,116	6,797	33,214
Gonorrhea (Smears for gonococci).....	7	1,223	496	1,173	581	2,008
Intestinal Parasites.....	22	5,909	2,272	4,850	1,409	8,236
Tularemia.....		2		3	1	5
Rabies.....	3	137	37	64	44	288
Paratyphoid.....	1	19	10	22	8	30
Tuberculosis.....	4	1,414	754	1,885	318	2,450
Other.....		1,521	354	1,125	498	3,184

## IMMUNIZATIONS

	Immunizations				By Whom			
	Indian		Colored		Total		Health Officer	
	Indian	White	Colored	White	Colored	Total	Nurse	Combined Personnel
Number Children Schick Tested—Positive.....	148	10,251	823		11,222		674	8,103
Number Children Schick Tested—Negative.....	774	26,434	2,229		30,023		2,435	19,596
Diphtheria Immunizations—(1) Infants.....	103	9,326	1,402		11,466		2,716	7,469
(2) Preschool.....	125	12,968	1,847		16,649		3,899	11,362
(3) Grade School.....	121	13,889	3,135		18,281		3,884	12,179
(4) Other.....	3	312	20		975		28	820
Typhoid Immunizations (Complete).....	1,812	205,538	83,064		299,974		68,833	207,352
Smallpox Vaccinations—(1) Infant.....	11	1,019	478		1,500		434	1,441
(2) Preschool.....	344	17,119	3,228		20,382		4,336	13,623
(3) Grade School.....	949	29,904	20,624		55,586		19,260	31,579
(4) Other.....	18	2,806	1,077		3,541		1,334	2,125

## VENEREAL DISEASE CONTROL

	Syphilis						Gonorrhea						Chancroid					
	Indian			White			Colored			Indian			White			Colored		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	M.	F.	M.	M.	F.	M.	M.	F.	M.
New cases attending clinic.....	15	18	1,621	1,440	2,305	3,233				3	1	680	123	389	94	143	3	40
Old cases attending clinic.....	2	21	14,682	11,338	7,408	9,663				5	3	5,312	329	938	247	80	2	36
Number discontinuing without permission.....		1	170	138	1,037	958						84	23	82	15			3
Number doses arsenical.....	33	55	5,578	5,068	17,189	22,543				2	3	283	40	693	260	11	2	73
Number doses Bi. or Hg.....	16	55	2,893	1,919	7,494	6,379				11	9	452	330	383	95	6	1	2

## TUBERCULOSIS CONTROL

	Indian	White	Colored	Total
Old cases visited.....				
New cases brought under supervision.....	12	3,473	2,951	6,436
Number of visits to new cases.....	8	1,113	766	1,887
Number of visits to old cases.....	10	1,268	931	2,209
Number of suspects examined.....	5	3,829	3,475	7,309
Number of contacts examined.....	100	5,299	2,532	7,931
Number of cases hospitalized.....	13	2,110	906	3,029
Number of clinics held.....		491	348	839
Number of patients attending clinics.....	25	967	556	1,548
Number of Tuberculin tests--(1) Positive.....	55	23,310	7,083	30,448
(2) Negative.....	10	8,529	3,272	11,811
	34	47,504	15,099	62,603

## MATERNAL HYGIENE

	Before 5th Month of Pregnancy			After 5th Month of Pregnancy			Total
	Indian	White	Colored	Indian	White	Colored	
New prenatal cases under supervision.....	122	1,529	1,270	272	2,044	3,012	3,875
Number of old prenatal cases visited.....	82	886	1,011	218	1,773	2,671	2,958
Number of hospital deliveries.....		18	5		156	102	3
Number of deliveries by physicians.....	5	739	135		6,853	1,099	394
Number of deliveries by midwives.....	1	221	548		1,268	3,051	368
							2,153
	Before 2nd Week			After 2nd Week			Total
Number of postnatal patients visited.....	21	1,312	774	47	906	696	3,629
(1) With prenatal supervision.....	8	1,039	664	56	677	604	2,404
(2) Without prenatal supervision.....	9	423	217	7	414	335	1,611
							1,083

## INFANT HYGIENE

	Before 2nd Week			After 2nd Week			Total		
	Indian	White	Colored	Indian	White	Colored	Indian	White	Colored
Infants under supervision (new).....	25	2,418	1,353	150	4,029	1,791	126	8,776	4,645
Number of infants supervised (old).....	14	1,440	328	35	5,573	4,590	57	12,265	7,432
Number of visits to infants.....	48	3,747	1,297	83	8,780	5,228	154	16,937	8,029
Number of conference visits.....	19	556	266	124	2,704	896	158	7,062	2,473

## PRESCHOOL HYGIENE

	Indian	White	Colored	Total
Preschool children under supervision (new).....	278	16,773	3,908	20,958
Number of preschool children supervised (old).....	97	13,047	3,752	16,896
Number of visits to preschool children.....	153	20,582	4,186	24,921
Number of conference visits.....	229	8,396	1,940	10,565
Number of preschool children examined.....	73	19,430	3,093	22,636
Number of preschool children free of correctible defects.....	41	4,071	957	5,169

## SCHOOL HYGIENE

	Indian	White	Colored	Total
Number of schools visited.....	90	7,463	2,998	10,551
Number of visits to schools.....	104	19,303	5,616	25,023
Number first grade school children inspected or examined.....	565	105,953	42,915	148,868
Number second grade school children inspected or examined.....	493	57,637	13,842	71,972
Number grade school children inspected or examined.....	625	270,112	100,266	371,003
Number high school children inspected or examined.....	88	21,030	5,814	26,932
Number of first grade school children free of correctible defects.....	20	18,183	6,289	24,492
Number of second grade school children free of correctible defects.....	32	12,458	2,005	14,495
Number of grade school children free of correctible defects.....	69	51,349	13,959	65,377
Number of high school children free of correctible defects.....	467	6,368	1,558	8,393



## LABORATORY

Examination for diphtheria.....	4,899
Examination for typhoid.....	2,350
Examination for tuberculosis.....	1,851
Examination for syphilis.....	39,531
Examination for gonorrhea.....	2,074
Examination of milk samples.....	12,835
Examination of water samples: (1) Public supplies.....	7,271
(2) Rural-semi-public.....	3,545
Examination, others.....	15,979

## POPULAR HEALTH INSTRUCTION

Number health pamphlets, placards, etc., distributed.....	479,227
Articles on Health published in newspapers.....	3,137
Lectures or talks on Health.....	7,945
Showing of motion pictures on Health.....	980
Special demonstrations to promote health work.....	7,770

## MEDICAL CARE

	Indian	White	Colored	Total
Number of patients treated or examined in home.....	9	10,913	3,990	15,193
Number of home visits.....	62	14,380	6,149	20,757
Number of patients treated or examined in office.....	1,199	66,923	49,238	117,358
Number of office visits.....	999	79,550	65,472	146,021
Number of patients treated or examined in County Jail.....	136	9,455	5,891	15,482
Number of visits to County Jail.....	1	2,832	4,193	7,026
Number of patients treated or examined in County Home.....	116	12,250	8,757	21,123
Number of visits to County Home.....		2,225	3,115	5,340
Number of visits to County T. B. Hospital.....		671	1,013	1,684
Number of completed anti-rabic treatments.....		1,066	127	1,193
Number of treatments, hookworm.....	16	585	489	1,074
Number of patients treated or examined in clinics.....	852	66,945	45,354	113,151
Number of clinic visits.....	844	28,832	38,859	68,535
Number of examinations, prisoners.....	143	2,824	4,080	7,047
Number of examinations for marriage.....		352	119	471
Number of examinations, teachers.....	184	4,026	2,881	7,091
Number of examinations, child for industry.....	11	1,108	692	1,811
Number of examinations by court order.....	2	330	174	506
Number of examinations for admission to institution.....	19	1,270	540	1,829
Number of examinations for lunacy.....	6	669	1,110	435
Number of examinations, postmortem.....	2	74	131	207



## SUMMARY

	Health Officer			Nurse			Sanitary Inspector		
	Indian	White	Colored	Indian	White	Colored	Indian	White	Colored
Number of homes visited.....	41	10,081	4,257	418	68,361	21,233	377	62,475	32,329
Number of persons served in office.....	704	126,106	62,036	229	116,154	66,031	29	22,466	834
Number of schools visited.....	29	3,112	917	54	6,927	2,348	56	2,611	1,086
Number of dairy farms inspected.....		533	15		93	2	2	925	667
Number of food handling establishments inspected.....		813	96		55	23	11	19,218	3,533
Number of administrative conferences attended.....	315	5,393	1,834	378	2,617	738	4	2,306	282
Number of office clinics attended.....	508	3,391	3,821	132	2,478	1,890	3	82	60
Number of school clinics attended.....	36	9,795	1,580	127	3,203	999		45	
Number of field clinics attended.....	246	4,805	2,760	248	6,267	4,020		256	153

## DIVISION OF VITAL STATISTICS

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The Bureau of Vital Statistics was created by an act of the General Assembly of 1913, which made the State Board of Health custodian of all records of births and deaths. The Secretary, by virtue of his office, is also the State Registrar of Vital Statistics. The Bureau is under the direct supervision of a medical director, whose official title is Deputy State Registrar. He is assisted by an additional staff of eighteen clerks.

In creating this Bureau the General Assembly assigned to it certain duties. These include the collection, editing, filing, and tabulation of approximately 110,000 birth and death certificates yearly. The method of registration as originally established has continued to the present time with only a few changes.

The fundamental features of our registration system are: first, for the purposes of registration, each township, town, and city constitute a separate registration district. With the consent and by the authority of the State Registrar, one or more of these units may be combined into one district. Counties with a whole-time health officer may be made into one registration district by the State Board of Health if it is deemed advisable for reasons of economy or efficiency in registration. In such cases the County health officer becomes the local registrar for the entire County and the funds formerly used to pay local registrars go into the budget of the County Health Department. This consolidation is made only with the consent of the local authorities. The following Counties register births and deaths under this plan: Cumberland, Durham, Forsyth, Franklin, Lenoir, Stokes, Wake, Wayne, and Yadkin.

Second, with the exception of the counties in which the health officer is the local registrar for the entire County, a local registrar is appointed for each registration district. Township registrars are appointed by the chairman of the board of County commissioners of their respective Counties, and town and city registrars by the mayor of the municipality. It is the duty of this local registrar to secure birth and death certificates for each person who is born or dies within his registration district and to forward these certificates to the State Board of Health on the fifth of each month. At the same time the local registrar forwards a report of the births and deaths that have occurred in his district to the County health officer.

Third, the doctor or midwife who attends a birth must file a birth certificate with the local registrar within five days after the birth occurs. A stillborn child is registered as a birth and also as a death, but only one certificate is required. This certificate is completed by the physician and the undertaker.

Fourth, the undertaker, or person acting as undertaker, is responsible for filing the death certificate. He must secure the personal information from the relatives or friends of the deceased, have the medical portion showing the cause of the death, filled out by the physician last in attendance, then take the certificate to the local registrar and secure a burial permit before

the burial takes place. In cases when no regular undertaker is employed, the member of the family or friend who purchases the casket and attends to the funeral is responsible for filing the certificate and securing the burial permit.

After the certificates reach the Bureau of Vital Statistics, they are edited, permanently bound, indexed, tabulated, and stored in a fire-proof vault. In checking for completeness amendment certificates and letters are sent to physicians, undertakers, and local registrars, among others, in an effort to secure all missing information. The name of the person found on the certificate is coded, and, for this coded number, an index card is made and filed in visible panels according to the Russel-Soundex system to enable prompt location if it becomes necessary to refer to the record.

In addition to the necessary collection of certificates and their completion, the activities of the Bureau of Vital Statistics include the tabulation and publication of routine and special reports on mortality. Federal funds made available by the Social Security Act will allow an increase in the services rendered. Three additional clerks have been secured to assist in this type of work. A more complete tabulation and issuance of a more detailed mortality report is anticipated through the aid of the Social Security workers. The additional funds have permitted the discarding of antiquated machinery. A new automatic duplicating key punch and an automatic sorter and counter have been installed.

Certificates of notification of birth registration have been requested from the United States Census Bureau. When these are received, an engraved certificate will be sent, free of charge, to the parents of each child soon after birth, provided the child's name appears on the certificate. These will notify the parents that the child is registered with the Bureau of Vital Statistics and will serve in every instance when verification of age is required, and as a record of the child's birth for the "babies book." Cards are sent to parents when the baby's name does not appear on the certificate, notifying them of the registration of the child's birth without a name. When these cards are returned with the name, certificates of notification of birth registration are then sent to the parents.

North Carolina was one among the first of the Southern States to be admitted to the United States Registration Area, being admitted for deaths in 1916 and for births in 1917. As a member of the Registration Area transcripts of all births and deaths are sent to the Bureau of the Census for which a fee sufficient to cover the cost of transcribing is collected. In addition, local registrars are permitted to use the frank in sending their monthly reports to the Bureau of Vital Statistics.

In order to make the tabulations necessary to furnish the information which this Bureau is constantly being called upon to provide, a card is punched for each birth and death certificate. These cards are then run through machines which automatically sort and count them. Tables are prepared from this data for the Annual Report of the Bureau of Vital Statistics.

The Bureau is making every effort to secure complete registration. These records are of value to the individual and as an index to the health of our citizens. To the individual a birth certificate will furnish proof, which will be accepted in every civilized nation on earth, of the place of birth, the time of birth, and parentage. The place of birth as recorded on the birth certificate may be used to establish citizenship or to establish residence. It is necessary in order to obtain a passport. The time of birth may be used to prove age, to obtain admission to school, to establish the right to work, to qualify for Civil Service examination, to hold public office, to establish the right to vote, to obtain a marriage license, to determine legal responsibility, or to prove qualification for or exemption from civic and military duty. Parentage, as stated in the birth certificate, is necessary to establish the right to inherit or bequeath property, to establish identity, to obtain settlement of insurance, to prove that parents have dependent children, to prove legitimacy or to furnish acceptable evidence of genealogy.

Death certificates may be used by individuals to furnish evidence in court, to secure pensions or life insurance, to establish titles and right of inheritance, or to give homeseekers and immigrants a guidance in selecting safe and healthful homes.

In organizations interested in health problems and procedures, birth and death records are used to determine the magnitude of health hazards, to plan new activities, to prevent epidemics, and to evaluate procedures. Since we use these records as a yard-stick for measuring our problems and progress it is essential that they be accurate.

The total number of live births reported in 1934 was 79,556 as compared to 79,746 for 1935. This gives a birth rate of 24.1 per 1,000 population for 1934 and 23.9 for 1935. The birth rate has declined from 31.2 in 1914 to a low of 23.0 for 1933. Although the decline in the birth rate in North Carolina has been marked, it has been paralleled by a similar decrease in the birth rates throughout the United States.

The health conditions in North Carolina for 1934 were, in general, not so favorable as for the preceding year. There were more deaths recorded from all causes combined, and consequently a higher death rate, than for any year since 1930. The 31,112 deaths, exclusive of stillbirths, represent an annual death rate of 10.6 per 1,000 population. Considered in terms of total deaths, the number reported for 1934 was 4,616 more than for 1933.

A great majority of the causes of death participated in the increase. Diseases of the heart, nephritis, cerebral hemorrhage, embolism and thrombosis, caused a larger number of deaths than the year before. Pneumonia and influenza alone killed over 900 more people than in 1933, and heart diseases nearly 800 more. Diarrhea and enteritis under two years increased. The measles epidemic accounted for 333 in 1934 against 91 for the previous year, and whooping-cough doubled. Scarlet fever, diphtheria and tuberculosis showed little change, while typhoid fever deaths were lower. The infant and maternal death rates manifest a considerable increase.

Violent and accidental deaths increased in 1934. The suicide rate was

somewhat below that of 1933, while homicides had a slight increase. Fatalities from automobile accidents continued to climb as did deaths from accidental burns. Deaths from railway, drowning, and firearm accidents remained practically unchanged.

The provisional death rate for 1935 of 10.1 represented approximately 1,400 fewer deaths than for 1934. The principal conditions showing fewer deaths for 1935 were: infant and maternal deaths, tuberculosis, whooping-cough, diarrhea and enteritis, and typhoid fever. The epidemic of acute anterior poliomyelitis in the summer months of 1935 accounted for 67 deaths, approximately 45 over the usual number.

It is important, both to the individuals and to health organizations, that we have complete and acceptable records of all births and deaths which occur in the State. We can only attain that objective when physicians, undertakers, midwives, registrars, and individuals do their part. Since birth and death certificates are important documents, it is essential that we have the legal signatures of physicians, midwives, and registrars. If every one who has responsibility in connection with birth and death certificates will give the consideration to these documents which their importance deserves, we can have records which will fill the needs of individuals and which will make health protection more effective.

## DIVISION OF EPIDEMIOLOGY

During the biennium the Division of Epidemiology has carried on its usual functions. Office routine consists of: (1) recording and analyzing daily reports of various communicable diseases forwarded to this office by physicians of the State; (2) preparation of spot maps, charts and graphs to visualize the distribution of cases over the State and their relation to incidence in former years; (3) preparation of weekly bulletins showing distribution of ten principal diseases reported in 100 Counties of the State, which are mailed to all County health officers and others interested in this reporting. Since our poliomyelitis epidemic in 1935 we have added that disease to this report, making ten instead of nine diseases reported upon; (4) preparation of a monthly analytical report showing the status of infectious diseases for the State as a whole; (5) preparation of a weekly telegram and monthly report for the Surgeon General of the U. S. P. H. S., giving incidence of the reportable diseases; (6) distribution of blank forms, placards and informative literature pertaining to communicable disease control; (7) analysis of reports for age and sex distribution for typhoid fever, poliomyelitis, pellagra, diphtheria, scarlet fever, measles, etc.; (8) checking of death certificates for completing case reporting; (9) keeping an investigation record of each typhoid fever case for the purpose of correlating the incidence with the sanitary status of the area in which it occurs.

When reports are received showing an unusual incidence of disease in any County, or when the local health officer requests assistance, special investigations of such outbreaks are made by the Director of the Division. Some of the more unusual diseases, whose epidemiological characters are not well understood, are investigated upon the appearance of the first case. The Division has before it records of case incidence for the entire State and is therefore in position to estimate prevalence and to know when epidemic proportions are reached. Of course, this estimation is based on reports received and is liable to errors in proportion to the degree of incompleteness of the reporting.

Incidence—Herewith is given the incidence by month of reported diseases for the calendar year 1935 for the State as a whole:

## Reportable Diseases—Reported Case Incidence by Months, 1935

Disease	Total	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Anthrax.....	73	3	2	1	1	2	6	4	6	14	12	11	11
Chaneroid.....	3,843	634	417	691	612	413	190	35	10	17	90	308	426
Chicken Pox.....	1						1						
Cholera.....	1,720	118	75	55	52	53	36	43	98	211	446	347	186
Dengue Fever.....	4						4						
Diphtheria.....	51	4	2	7	1	6	2	4	9	7	2	4	3
Dysentery (Bac.).....	589	47	25	131	160	139	27	13	6	9	9	14	9
Endemic Typhus.....	1,807	146	109	155	148	112	123	162	145	163	198	177	169
German Measles.....	3,215	1865	883	244	50	23	3	3	5	17	31	33	58
Gonorrhea.....	10,683	3011	3058	2354	1180	722	157	54	17	33	8	60	29
Influenza.....	109	9	13	12	13	10	13	8	5	4	11	5	6
Measles.....	19	1		2	2	4		1	1	1	3	2	2
Meningitis.....	26	1				2		12	1	4	4	1	1
Opthalmia Neon.....	732	14	5	55	62	89	133	151	84	48	53	22	18
Para-Typhoid Fever.....	675	2	1	3	8	44	198	229	81	50	28	18	13
Pellagra.....	4				1				1		1		1
Plague.....	21					1	3	5	4	5	1		2
Poliomyelitis.....	2,072	232	135	153	87	61	58	73	85	220	386	309	273
Psittacosis.....	116	10	8	3	6	18	3	10	9	13	13	8	15
Rabies.....	24	1			5	1	6	2	1	2	1	3	2
Rocky Mtn. Spotted Fever.....	5,189	442	482	411	470	360	461	431	451	380	459	420	419
Scarlet Fever.....	6		1	2						2	1		
Septic Sore Throat.....	1,996	149	166	165	96		115		589	149	370	105	92
Smallpox.....	15	5	3		2			1	1	3			
Syphilis.....	645	13	5	7	20	18	87	169	122	98	53	34	19
Trachoma.....													
Tuberculosis.....	31	2	2	3	1	3	2	3		8	1	5	1
Tularemia.....	10,075	1120	1246	1679	1651	1422	1179	699	435	251	133	130	130
Typhoid Fever.....													
Typhus (European).....													
Undulant Fever.....													
Whooping Cough.....													
Yellow Fever.....													

In 1935 an epidemic of poliomyelitis occurred in North Carolina. There were reported 675 cases of the disease for the year, the unusual incidence beginning about May 15 and continuing through September before returning to a normal level. The mortality rate was 10%. We are indebted to the U. S. Public Health Service, the Harvard Infantile Paralysis Commission, and the Extension Division of the Warm Springs Foundation for the services of their investigators. During this epidemic control policies were adopted by the North Carolina State Board of Health which were publicized throughout the State.

A tabulation of 1935 reported cases of poliomyelitis, grouped by age, color and sex, with case rates based on 100,000 population, is given below:

## North Carolina—1935 Reported Cases Poliomyelitis—By Age, Color, Sex

Age Group	Total			White			Colored			Indian			Not Stated	
	Both Sexes		Male	Female		Both Sexes	Male		Female	Both Sexes		Male	Female	Both Sexes
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Under one year.....	52	69.5	21	55.0	31	84.4	30	56.9	13	47.9	17	66.0	20	62.9
One to four years.....	284	90.0	154	96.1	130	83.3	212	95.9	120	105.7	92	85.0	62	66.5
Total Under five years.....	336	85.9	175	88.5	161	83.5	242	88.4	133	95.1	109	81.3	82	71.6
Five to nine years.....	188	43.9	105	48.8	83	39.2	160	54.4	92	61.7	68	47.0	24	18.4
Ten to fourteen years.....	62	16.1	33	17.1	29	15.4	54	20.6	28	21.0	26	20.2	7	6.0
Fifteen to nineteen years.....	36	10.0	17	9.5	19	10.4	29	10.2	14	11.5	15	12.3	6	5.1
Twenty to twenty-four years.....	15	5.0	10	6.9	5	3.1	13	6.3	9	8.2	4	3.7	2	2.1
Twenty-five years and over.....	34	2.6	20	3.1	14	2.1	18	2.3	10	2.3	8	1.7	14	4.0
Unknown.....	4	-----	4	-----	-----	-----	3	-----	3	-----	-----	-----	-----	-----
Total.....	675	21.3	364	23.1	311	19.6	519	23.1	289	26.2	230	20.6	135	14.7
													69	14.6
													17	7
													10	4
													2	2

NOTE: Indian rates not given by age groups. Total rate for both sexes is 102.0; males 83.; females 102.1.

NOTE: All rates are per 100,000 population.



During the biennium *tuberculosis* was made reportable to the State Board of Health rather than to the State Sanatorium. This has increased considerably the work in this office. Although *typhoid fever* in 1935 showed an increase over reported cases for 1934 which returned it about to the 1933 level of cases, there were no epidemics reported; only scattered cases. *Smallpox* apparently has ceased to be a major problem in communicable disease control; reported cases for the biennium were negligible. A decided decrease in reported cases of *diphtheria* was noted in the biennium. This is indeed encouraging, and it is hoped it indicates that more stress is being laid upon immunization, especially in the years in which it is most effective, that is, before the child is five years of age, for it is in this age group that the majority of cases and deaths from this disease occur. *Measles* was epidemic in 1934, but not in 1935. *Rocky Mountain spotted fever* still occurs in certain sections of the State. There is no marked increase in incidence, however, the geographic distribution remaining the same.

The Bulletin, "Rules and Regulations Governing Control of Communicable Diseases" as adopted by the State Board of Health, and many pamphlets of the "Facts" series were revised during the biennium. A number of lectures, radio talks and newspaper articles were released.

The Division has continued to prepare and distribute each year a morbidity report for North Carolina. The 1934 report contained a table each for diphtheria and typhoid fever for the years 1924-1928 inclusive with cases by age groups, in addition to the usual tables of incidence by County and by month for each reportable disease. The 1935 morbidity report contained the usual tabulations covering that year. This morbidity report is sent to an increasingly large mailing list each year, to every State in the Union, every medical college library, many universities and hospital libraries, numerous private physicians and educators, and to a number of foreign countries.

**COMMUNICABLE DISEASE CONTROL.** No immunization program sponsored by the State Board of Health was possible in the biennium as no appropriation was provided for this purpose. The State Board of Health, therefore, could not require those Counties conducting campaigns to furnish records to this office. In Counties without full-time health service immunization campaigns are conducted by local physicians and financed by local authorities. The State Laboratory of Hygiene furnishes free of charge typhoid vaccine and smallpox vaccine to physicians conducting such campaigns. Diphtheria toxoid is furnished, however, at a nominal cost. Immunization records, upon request, are certified by this Division.

**QUARANTINE SERVICE.** During the biennium quarantine reports from 46 Counties without full-time health service have been received in this office for checking against disease records and certification each month. These Counties are served by a quarantine officer who is paid each month by the County the amount certified as due him. The quarantine officer, elected by the County, quarantines, placards and reports cases of communicable diseases. Payment for such service is made according to a fee schedule based upon County population and may not exceed the monthly or yearly maximum indicated on the schedule.

**VENEREAL DISEASE CONTROL.** During the biennium 41 local clinics, exclusive of those in State institutions, were operated for the treatment of syphilitic individuals. A small fee was charged those not indigent but unable to pay a private physician, this fee being used to purchase drugs. Those unable to pay any fee were treated free of charge.

Under the Social Security Act funds were made available to employ a full-time venereal disease control officer to work in the Division. A suitable person had not been secured at the close of the biennium. Motion picture equipment and appropriate films were purchased to be used in the educational program planned for the State.

The \$5,000 worth of venereal disease drugs purchased by the NCERA for the treatment of syphilitics on County relief rolls were distributed by this Division, but with the discontinuance of NCERA in 1935 no further drugs were available.

In 1936 a rather serious outbreak of vulvo-vaginitis occurred in some schools of the State. Approximately 500 cases have been known to be infected. Changes in construction of toilet seats were made and it is urged that all new toilet equipment in schools be of the approved "open front" seat type. This measure alone, if adopted, will aid materially in controlling the spread of this type of infection. It is recommended that toilet facilities of this approved type be installed in all public toilets in the State.

**HOOKWORM SURVEY.** Late in 1935 the State Board of Health in co-operation with the Rockefeller Foundation and Vanderbilt University Medical School began a survey of all North Carolina Counties that showed an infection rate of 20 per cent or higher in the 1910-14 Rockefeller Foundation survey. This work is being done with Rockefeller Foundation funds. Examination of specimens is made at Vanderbilt University Medical School. A full report of the survey will be made upon its completion. Examination results, received in this Division, are forwarded to the counties and a follow-up program is urged so that infected persons may receive treatment. It is hoped that local authorities will institute a two-point program for eradication of this disease: first, to see that infected persons are placed under treatment, furnishing a copy of each patient's report to his physician; and second, to so improve sanitary conditions as to eliminate the possibility of re-infection.

## DIVISION OF ORAL HYGIENE

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Mouth Health Teaching in the Division of Oral Hygiene is progressing and proving its worth as an integral part of a Public Health Program. Prevention is necessarily a part of education and the Division of Oral Hygiene directs its entire activity to this field. The staff has been increased this year due to the fact that we have been able to induce appropriating bodies in Counties, and individuals to make additional funds available. This money we speak of as funds from outside sources.

Mouth Health Programs were conducted in twenty-six Counties and three city units during the school year 1934-1935 and in thirty-eight Counties and three city units during the school year 1935-1936. In addition to this, work was done in many of the orphanages and State institutions for children in the State.

The dentists on the staff are trained to go into the classrooms and teach Mouth Health didaectically, and, after this is done, dental equipment is set up in the schools and the necessary corrections made in the mouths of as many indigent children as the time allotted to the various schools will permit. Other children are examined and parents notified that their children need dental attention and that the parents should consult their own dentists for more complete examinations. These notices are sent through the United States mail, and reports from dentists engaged in private practice indicate that thousands of children are thus prompted to go to their offices. This arrangement is entirely satisfactory to all concerned.

Mouth Health Teaching as carried on by the Division of Oral Hygiene of the State Board of Health is recognized throughout the United States and abroad as one of the best, if not the best, programs anywhere. As evidence of this fact we are having visitors from other States to study our plan, as well as having inquiries from States who are putting in Mouth Health work in their Health Departments. We have even had inquiries from Germany and India.

As further evidence of what is being accomplished by this Division's activity in the line of Health Education and Prevention, I will say that in an isolated County, in which there is no dentist, six years ago upon our visit, we had to extract forty-seven permanent teeth for the children in one school. This County has had a Mouth Health Program each year since our first visit, all of the schools being visited each year. In the Mouth Health Program just finished in this particular County there was only one permanent tooth to be extracted in all the schools, and this was for a child who had moved into the County during the present school year. This should be satisfactory evidence to all concerned that Mouth Health Education does pay and that it has a place in every Public Health Program.

To further and make more effective our Mouth Health Teaching we employ many methods of visual education, one of which is our puppet show, "Circus or Bust." During the school year 1935-1936, we played to approximately 540 schools, the puppeteers giving three performances each day. We

invited the children to write to Little Jack, the hero of the play, and asked that they mention in their letters the four rules of Mouth Health emphasized in the play. Little Jack received and answered thousands of these letters. In his answers Little Jack urged the children, as a personal favor to him, to keep the rules. Thus, the four rules of Mouth Health were indelibly impressed on the minds of the children, and, at the same time, there was a direct tie-up between the children and the State Board of Health which we consider very worthwhile and desirable.

The outstanding accomplishment of the Division of Oral Hygiene for the year 1935-1936 is the arranging for a course of Public Health Dentistry to be taught in the Division of Public Health of the University of North Carolina. This is the first School of Public Health in the United States or abroad to train dentists. The first session of this school was held from May 25th through July 3rd and was attended by the sixteen white dentists on our staff. The Children's Bureau of the United States Department of Labor was so well pleased with our first efforts in the school that it has approved it for the training of dentists in Public Health work for all the States and Territories.

## N. C. STATE BOARD OF HEALTH—DENTAL DIVISION REPORT OF DENTAL ACTIVITY

### BIENNIAL REPORT

July, 1934, Through June, 1936

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Total number children examined	146,106
Total number children treated	85,293
Total number children referred to local dentist for treatment	34,505

Amount and class of treatment itemized as follows:

Number amalgam fillings	58,787
Number cement fillings	10,481
Number silver nitrate treatments	120,673
Number teeth extracted	64,386
Number children—teeth cleaned	84,233
Number miscellaneous treatments	5,521

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Total number operations	344,081
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Number of children needing nothing done	13,902
Number lectures on Oral Hygiene	3,630
Total attendance at lectures	190,867
Total number worked for who were repeaters	32,062

## DIVISION OF INDUSTRIAL HYGIENE

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Established to bring the benefits of preventive medicine to the million and a quarter North Carolinians who are engaged in industrial pursuits, the Division of Industrial Hygiene is a recently organized joint activity of the North Carolina State Board of Health and the North Carolina Industrial Commission that in the few months of its existence has demonstrated the importance of work that is concerned entirely with the preservation of the health of workers in industry. The substitution in recent years of new and better methods of manufacture in many establishments, the development of entirely new industries, and the introduction of new chemicals by reason of such improvement and progress have exposed workers to health hazards that in some instances have become apparent only with the disablement or death of the unfortunate victims. The extent to which modern industry has enlisted the aid of science has made it independent of many of the conventional processing substances that have been used for a generation or more. Today a new solvent, wax, gas or other chemical with the desired properties is created to meet the peculiar demand of industry. Such useful chemicals are usually introduced into manufacturing processes with little thought being given to their possible harmful effect upon the person who must be exposed to them. In numerous instances within recent years many of them have been found sufficiently toxic to be disabling, and all too frequently exposure to them has resulted in fatalities. The health hazards in industry, however, are not confined to the newer methods of manufacture. In industries in which processing methods in use at present are substantially the same as those originally employed, there exist health hazards that only recently have been revealed. It is now known why the incidence of pulmonary infection is greater in some trades than in others, why skin diseases are more prevalent among certain workers, why degenerative changes are encountered more frequently in some groups of people than in the population generally, and so on.

Briefly, this division is concerned with the cause and prevention of occupational diseases which involve the isolation of the factors responsible for the disablement, or death, of workers by such maladies, the evaluation of the degree of the health hazards in industry by plant and by manufacturing department of the establishments involved, the development of means of safeguarding the health of workers in some instances, and the recommendation of methods for the reduction of the risks in all cases, and the pre-employment health of workers that are to be engaged by certain industries.

This phase of preventive medicine has been of concern to governmental health agencies for only a few years. The U. S. Public Health Service entered the field about fifteen years ago and for several years was the only health agency engaged in industrial hygiene activities. A major portion of the data available on the subject at present and much of the technique and apparatus employed for evaluating industrial health risks has been developed by the Federal health department. In 1928, a Division of Occupational Diseases was established as an activity of the Connecticut State Department of Health. Until recently this State Department and the Public Health Service were

the only public health organizations engaging in industrial hygiene work. There has been a recent awakening of interest in industrial health problems in many States with the result that during the first six months of 1936 seventeen States and several large city health departments instituted industrial hygiene programs. These States together with the North Carolina and Connecticut organizations make, in all, nineteen States in which such work is either under way or is soon to be started as activities of the State Departments of Health. Despite the fact that the work is relatively new, the problems involved are being tackled on a wide front.

In North Carolina the establishment of a Division of Industrial Hygiene as an agency of the State Board of Health resulted from the amendment of the compensation laws of the State by the 1935 General Assembly. This legislation has since become known as the Occupational Disease Act. It makes disablement or death by an occupational disease interpretable as an injury by accident and thus compensable for the first time under the Workmen's Compensation Act of 1929. The North Carolina law lists twenty-five diseases and conditions as being occupational diseases within the meaning of the Act. The specific ailments involved are listed as follows:

1. Anthrax.
2. Arsenic poisoning.
3. Brass poisoning.
4. Zinc poisoning.
5. Manganese poisoning.
6. Lead poisoning. Provided the employee shall have been exposed to the hazard of lead poisoning for at least thirty days in the preceding twelve months' period and, provided further only the employer in whose employment such employee was last injuriously exposed shall be liable.
7. Mercury poisoning.
8. Phosphorous poisoning.
9. Poisoning by carbon bisulphide, methanol, naphtha, or volatile halogenated hydrocarbons.
10. Chrome ulceration.
11. Compressed air illness.
12. Poisoning by benzol, or by nitro and amido derivatives of benzol (dinitrol-benzol, anilin, and others).
13. Infection or inflammation of the skin or eyes or other external contact surfaces or oral or nasal cavities due to irritating oils, cutting compounds, chemical dust, liquids, fumes, gases, or vapors.
14. Epitheliomatous cancer or ulceration of the skin or of the corneal surface of the eye due to tar, pitch, bitumen, or residue of any of these substances.
15. Radium poisoning or injury by X-ray.
16. Blisters due to use of tools or appliances in the employment.
17. Bursitis, of the knee or elbow, due to intermittent pressure in employment.
18. Miner's nystagmus.
19. Bone felon due to constant or intermittent pressure in employment.
20. Synovitis, caused by trauma in employment.
21. Tenosynovitis, caused by trauma in employment.
22. Carbon monoxide poisoning.
23. Poisoning by sulphuric, hydrochloric or hydrofluoric acid.
24. Asbestosis.
25. Silicosis.

Evidently silicosis and asbestosis were considered as being the more important of the various maladies by the framers of the act since the law requires the North Carolina Industrial Commission to designate those industries in which the employees are subjected to the hazards of these diseases. The legislation provided further that on and after the date the act became effective, all new employees of such establishments be given a pre-employment examination "for the purpose of ascertaining if any of them are in any degree affected by asbestosis and/or silicosis or peculiarly susceptible thereto." The section providing for the pre-employment clinical and X-ray examination of workers who are to be employed in industries that handle or process siliceous materials makes the North Carolina Occupational Disease Act distinctive. It marks the first attempt of government to insure that workers are physically fit to enter trades in which they may be subjected to certain occupational disease hazards.

The North Carolina Industrial Commission was made administrator of the act and \$10,000.00 appropriated to defray the cost of carrying out the provisions of the new legislation. In negotiating for direction and assistance in administering the act, the Industrial Commission enlisted the aid of the State Health Officer and the Director of the Office of Industrial Hygiene and Sanitation of the U. S. Public Health Service. The ensuing negotiations culminated in there being tentatively set up a Division of Industrial Hygiene as a department of the State Board of Health. An agreement was reached whereby the funds appropriated for the use of the North Carolina Industrial Commission in administering the act would be used for financing an attenuated program of industrial hygiene work. Later, provided anticipated Social Security Legislation Funds became available, the work would be subsidized by the U. S. Public Health Service, at which time the scope of the program would be enlarged and a permanent organization established. By virtue of such an agreement industrial hygiene work was begun in North Carolina.

In September, 1935, a physician and an engineer were employed by the North Carolina Industrial Commission and a program definitely launched. In January, 1936, a stenographer-clerk was added. The anticipated Social Security funds became available the following month. It was not until late spring, however, that the existing organization was perfected. In May another physician was employed and in June a Medical Technician was added to the staff. At present the five persons engaged in industrial hygiene constitute a full fledged and active division of the State Board of Health.

The Division of Industrial Hygiene of the North Carolina State Board of Health is the first such public health activity to be set up with the aid of Social Security Legislation funds. The inauguration of the work during the past September was under the supervision of an engineer from the U. S. Public Health Service. At the outset it became evident that information on the dusty trades was essential for the execution of the Act. This was necessary, first, in order that industries involving an asbestosis or silicosis hazard might be officially designated by order, and second, because it was apparent from a review of the list of North Carolina industries that siliceous dusts



probably constituted the major occupational disease risks. A survey of the industries involving such hazards was, therefore, decided upon.

A list of the industries scheduled for survey was prepared and a form devised by the Public Health Service engineer upon which to record the survey data obtained at each of the plants visited. Thus prepared, there was begun a survey of those North Carolina industries that handle, or process, siliceous materials. The assistance provided by the Public Health Service was invaluable; the prompt and thorough manner in which the work got under way attests the efficiency and ability of the officer detailed to start the industrial hygiene program in the state. The survey was not turned over to the State Department for execution until after most of the initial difficulties had been overcome. It was only after ten manufacturing establishments had been surveyed jointly that the Public Health Service engineer was willing to relinquish the program to State personnel.

The survey of siliceous dust industries was continued for two months, or until the middle of November, at which time the physician and engineer engaged in the work went to Washington to confer with Public Health Service officials and outline the form of a progress report. Following their return to the State, a preliminary report presenting the survey data collected during the previous two months was prepared. Copies of it were distributed to the State Health Officer, the U. S. Public Health Service, the North Carolina Industrial Commission, the North Carolina Department of Labor and the North Carolina Rating and Inspection Bureau.

Meanwhile, plans for a study of the occupational disease hazards in the asbestos textile industry had been completed by the U. S. Public Health Service. There are four typical plants in the Charlotte area of this State. The segregation of the industry together with the fact that such a study would serve as excellent training for the personnel of the recently organized Division of Industrial Hygiene, in all probability had great weight in the selection of the location of the investigation. At any rate, North Carolina asbestos plants were chosen for study. The North Carolina State Board of Health was invited to co-operate in the prosecution of the work. The State Health Officer accepted the invitation.

Accordingly, during the month of December, 1935, the State Board of Health physician and engineer assigned to industrial hygiene work assisted three Public Health Service officers in making a study of one asbestos plant in Davidson, N. C. The work was continued after Christmas, six weeks being required to complete the investigation of a larger plant in Charlotte. About the middle of February, the Public Health Service officers returned to Washington. However, since there remained for study two smaller asbestos textile plants, the Public Health Service laboratory technician was sent back to North Carolina to co-operate with State employees in extending the investigation to include these establishments.

Upon completing the study of the asbestos plants, State personnel undertook an engineering and medical evaluation of the occupational disease hazards in a granite fabricating plant. Equipment borrowed from the Public Health Service was employed for the work. This study constituted the first

independent investigation of an industrial establishment by the newly created division.

Following the investigational work, the survey of those industries involving a siliceous dust hazard, which was interrupted by the plant studies, was resumed. This work was continued for a month at which time it was brought to a close although all plants listed for survey had not been visited. While the data collection work was not carried to completion, the information in hand was sufficient to provide an accurate conception of the status from an industrial hygiene viewpoint of the industries involving a siliceous dust hazard. In order that some data might be available on the plants that were not visited, a questionnaire, and letter in explanation of it, were sent to about 60 plants. In this manner there was obtained for many of the plants that were not surveyed the number of persons employed, the nature of the raw materials, the finished products and other pertinent information.

In May, the physician and engineer employed to inaugurate an industrial hygiene program in the state, together with a physician newly added to the staff, reported to the offices of the Public Health Service in Washington. This visit was made in connection with the study of the asbestos plants. During the ensuing ten days, the physicians read more than 500 X-ray films of the chests of workers that had been examined. In addition the X-ray findings were correlated with the results of the clinical examinations. This work was under the supervision of the Public Health Service Surgeon who had been in charge of the investigations in North Carolina. The engineering data was compiled jointly by the State and the Public Health Service engineers. At this time, also, there was begun a description of the manufacturing processes and machines that are utilized in the production of asbestos yarn and other asbestos textile products. The data collected in the asbestos textile plant study is to be presented in a formal report that will be issued at an early date by the Public Health Service.

While the State representatives were still in Washington, the Public Health Service began a seminar on industrial hygiene to which all State and municipal health departments, interested in the subject, were invited to send representatives. North Carolina being one of the States to which invitations were sent, the two physicians and the engineer were authorized by the State Health Officer and the North Carolina Industrial Commission to attend. There followed, then, a period of four weeks during which time Public Health Service officers lectured on the various phases of industrial hygiene activities. During the last week, visits were made by the class to the State departments of industrial hygiene in Massachusetts, Connecticut, and New York, and to the industrial hygiene laboratories of the Metropolitan Life Insurance Company in New York City. During this trip, visits were made to granite quarries and cutting sheds and to a stone crushing plant, in each of which dust was satisfactorily controlled by exhaust ventilation.

During the intervals between the major activities that have been accounted for, the personnel of this division found time to assist the State Health Officer in making arrangements for the conversion of a basement in the health building into suitable offices and to engage in other incidental

work. The selection of suitable equipment consumed much time. Especially, was this true of a portable X-ray apparatus. There were several companies endeavoring to sell this equipment. The claims of the salesmen were somewhat in conflict and since dependable equipment is essential, it became necessary to indulge in some correspondence and interviews with persons familiar with X-ray apparatus in order to decide upon which machine was best suited to the work. The equipment for engineering studies was not so difficult to decide upon, but even so, the compilation of an equipment order necessitated a study of catalogues. After the orders for equipment had been sent in, there ensued numerous conferences about them with State Purchasing Department employees and others. Concurrently with this work, there was compiled a list of reference books and journals that were needed for the department. In addition, there were prepared three radio talks and other articles for publication or presentation before various bodies.

Following the Seminar in Washington, there was completed in the offices of the division the description of manufacturing processes employed in the asbestos textile industry which was begun while State representatives were still at the headquarters of the Public Health Service.

A study was made from survey data of the distribution of the North Carolina industries involving a siliceous dust hazard in order that an itinerary might be prepared for the physician and medical technician who would make clinical and X-ray pre-employment examinations for such establishments. At this time there were more than 200 form letters sent out to the industries appraising them of the pre-employment examination plans of the division. There was devised also a form upon which the employer might report each month the number of persons that were selected for examination. This form was enclosed with the letters that were sent out to the industries. Following the dispatch of this material developments warranted the dissemination of additional information and accordingly a second form letter was sent out to the same list of employers. There was mailed at about this time to 32 health officers a letter of information relative to the pre-employment examination plans of the division.

There was available no satisfactory form upon which to record the results of the pre-employment examinations. The data to be collected in each instance would include a case record, or occupational history, and the results of the clinical and fluoroscopic examinations. The development of a satisfactory form upon which to catalog such data proved to be a difficult task—there was such a variety and volume of information that appeared to be pertinent. After several days, however, a four-page tentative form was prepared. Following this work it became apparent that in many instances persons would be given several examinations a year by reason of their changing jobs unless some means were provided to eliminate such needless repetition. It was decided, therefore, to provide each worker examined with a card certifying that the holder had been examined on a certain date. The card indicated also that no further pre-employment examination would be required within one year of the date of the certificate. The development of so simple an instru-

ment required much effort and several consultations with the Industrial Commission.

It is a source of gratification to the North Carolina State Board of Health and the North Carolina Industrial Commission that the Workmen's Compensation Insurance Carriers operating in the State have agreed to co-operate fully with the new division of Industrial Hygiene. The Compensation and Rating and Inspection Bureau of North Carolina as the representative of such underwriters has offered to accept the findings of this division for use in establishing rates and as evidence in settling controversies which may arise.

This Division has no police authority; it is purely a fact-finding organization. The absence of such powers is probably advantageous in that the results of investigations will not be prejudiced in favor of either capital or labor. The intent of the State Board of Health is to remain strictly neutral with respect to such interests.

In addition to research performed to establish critical concentrations of dusts, gases, fumes, other chemicals and what not, the Division is to provide information on occupational disease hazards to the North Carolina Department of Labor, the North Carolina Insurance Department and the Compensation, Rating and Inspection Bureau.

At a joint activity of the State Board of Health and the North Carolina Industrial Commission, the Division is of course at the service of the latter at all times for whatever work it wishes performed.

**SUMMARY OF MAJOR ACCOMPLISHMENTS.** In the survey of certain industries involving a siliceous dust hazard there were 187 visits made to North Carolina establishments. There were 34 of them that were eliminated as being only branch offices, or not operating; the data for 15 were discarded because the plants were considered too small to justify the use of the information. A report was prepared based on the data collected at 138 plants. Some of the more outstanding findings of the survey are presented as follows:

Total number of workers involved	5,608
Percentage of plants supporting welfare activities	18%
Percentage of plants participating in welfare activities	36%
Percentage of plants having no first aid supplies	20%
Percentage of workers exposed to siliceous dust hazards	55%
Percentage of workers exposed for whom some dust control measures have been provided	25%

(The existence of control devices must not be interpreted as denoting protection).

The study of the health hazards in the asbestos textile industry was conducted by the U. S. Public Health Service with the assistance of this division. The workers in these establishments were subjected to clinical examinations, particular attention being given to the lungs and respiratory tract. The fluoroscope was used in every instance and an X-ray film made of the chest of each worker or prospective employee. Samples of urine were obtained from all except 31 persons examined and analyzed for free silica, sugar, albumen

and pus. Sputum specimens were obtained from a majority of the workers and examined for asbestos bodies and tubercle bacilli. The engineering work consisted of the determination of the concentration of dust in the atmosphere of the various departments of the plants and an evaluation of the efficiency of the dust collection systems. The magnitude of the study is indicated by the following statistics:

Number of plants involved in study.....	4
Number of persons given clinical, and fluoroscopic examinations	521
(This includes 21 pre-employment examinations and 21 discharged cases)	
Number of persons for whom urinary examinations were made	490
Number of chest X-ray pictures made .....	521
Number of air samples analyzed for dust concentration .....	271
Number of exhaust ventilation systems studied .....	2

The study of the granite cutting plant was made by the personnel of the division using equipment borrowed from the Public Health Service. The technique involved was identical to that employed for the asbestos study.

Number of persons given clinical and laboratory examinations	46
Number of chest X-ray pictures made .....	46
Number of air samples analyzed for dust concentration .....	13
Number of exhaust ventilation systems studied .....	2
The miscellaneous work of the department is summarized as follows:	
Number of radio talks prepared .....	3
Number of other talks prepared .....	2
Number of questionnaires sent industrial establishments .....	60
Number of form letters relating to pre-employment examinations (2 sets) .....	400
Number of form letters to County health officers .....	32

## ANNUAL REPORT NORTH CAROLINA STATE BOARD OF HEALTH TO CONJOINT SESSION STATE MEDICAL SOCIETY

By CARL V. REYNOLDS, M. D.  
Acting Secretary and State Health Officer  
May 8, 1935

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The members of the North Carolina State Board of Health are outstanding men in their various professions, men of character, determination, with a continuity of purpose and a keen sense of their obligation to society.

Such a board felt secure when James M. Parrott was its standard-bearer and it was a sad event when God, in His infinite wisdom, removed him. His death was an incalculable loss to the board. Jim was a man of rare executive ability, strong personality, keen observation, a forceful speaker, and to know him was to admire him. But to those who knew him best, their greatest loss was that of a friend whose memory will linger on, and on, and on.

When I stood before this body May 2, 1934, little did I dream that I would be here today as your State Health Officer. At this moment, I see reflected in your memory, the past masters of public health activities in this State, Doctors Wood, Lewis, Rankin, Laughinghouse and Parrott. This vision prompts you to ask—what manner of man is he that can cope with such peers? I, too, wonder, and have undertaken to follow them with due humility, but with hope and a determined purpose, to carry on the work of these inspired leaders.

Why is this thing we call Public Health? And, why its existence? If a child, the creature of God and made in His image, is worth while—then public health is worth while. If a child is worth while—then the basic standard for equal opportunity in life is worth while. A heritage that will assure him of a sound mind in a sound body is worth while. Assuming such a beginning, it is our social obligation to preserve and protect that sound mind and sound body with activities that will prevent disease and lead to the preservation of his health that he may compete for his place in the world.

That thing we call nature has strict, rigid and unrelenting laws, and man, an unhindered free-agent shall abide by her laws or suffer in consequence by this exacting disciplinarian. This relentless law might be all-sufficient if the sins of the fathers were not visited upon the third and fourth generation. So it behooves us to protect the ignorant, the innocent, and law-abiding against the indifferent, careless or lawless offenders. We have groped through superstition, fear, ignorance and prejudice until our accomplishments are beginning to be appreciated by the laity, and the governmental agencies are beginning to realize that health is purchaseable and that to purchase it is of inestimable economic value.

Let's bring together the diverse methods and practices of thought and action in the medical profession today and through a co-operative spirit and action I can visualize as an outgrowth a recognition and an evaluation of

services that will be accredited by all governmental agencies and looked upon with favor, and appreciated by the citizenry. Co-operatively—rather than individually—can we gain this wholesome accomplishment.

There is a distinct line of demarcation between public health activities and corrective, curative and surgical activities. Both should be, and are essential to the health, happiness, prosperity and material well-being of our fellowman. These agents are inter-dependent and the success of either is dependent upon the cooperation of the other. "United we stand—divided we fall."

### NEW PROBLEMS

There has been an active working, unified spirit this year between the U. S. Public Health Service, the Rockefeller Foundation, the State Health Department, County and City health units, and the members of the medical profession, to improve health conditions and eradicate disease. While this is highly gratifying and the coordinated work has stimulated us to believe that we are fast gaining control of smallpox, typhoid fever, diphtheria, whooping cough, measles, scarlet fever, undulant fever, hookworm, etc., I am reminded of the inroads of new problems. I desire to make this observation and to warn you of the increasing menace that appears to be confronting us. I have only to remind you of the recent outbreak of epidemic encephalitis in St. Louis in 1933 and its increasing appearance in many other states; amoebic dysentery in Chicago; the many cases of poliomyelitis in Los Angeles this year, so that you may keep it constantly in mind remembering the while that vigilance will be required by all to retard their spread until a preventive is found.

Another observation, if you please, is this: we have now 42 full-time county health units in the State but the lack of such health units in the remaining counties is a serious handicap to public health progress and through this unprotected area is our greatest avenue for the spread of epidemic diseases.

Government and State Aid should do more for the financially weaker counties until they are able to finance themselves. There should be no county lines in public health protection.

### PERSONNEL

I desire to make this observation again to you notwithstanding that a letter was written to every county medical society in the State—there is going to be an ever-increasing demand from the ranks of the medical profession for doctors that are trained in health work, doctors with a public health degree. This is made necessary in order that county officials may avail themselves of supplementary funds from the State and the U. S. Public Health Service. It will do another thing as well—it will stabilize the health officers' tenure of office, and most important it will minimize political interference with health activities, the latter having been our greatest handicap to progress and the greatest discouragement to the physician who is contemplating public health work.

## LEGISLATION

I think it is appropriate for me to remind you of this important fact: there were forty-two bills affecting health introduced in the House and Senate this term of the Legislature, some of vital importance to public health and others of vital importance to the medical profession. In the political arena, one thing was keenly observed, namely, if any bill was introduced that affected any group other than the medical group, there appeared lobbyists and interested men and women from everywhere, it seemed to me, to defend the bill or oppose its passage. If it were of interest to the chiropractor, they were there in numbers; if it were pertaining to osteopathy, they were there with interested laity and paid attorneys; if it affected Christian Scientists, they were there in full strength, and believe me when I say they had the ear and the defence of the House or Senate. The medical defenders were conspicuous by their absence.

The Legislative Committee, headed by Dr. Ben J. Lawrence, did a heroic piece of work and this body owes him and his associates a debt of everlasting gratitude. Do I hear you say, "Why all this?" "It is not pertinent or germane,—thou foolish one." If organized medicine and public health activities are to be controlled by medical men, we will have to become politically-minded and increase our representatives in the House and Senate with our strongest men in order that we may debate questions vital to us on the floor. As it is, we suffer humiliation with the implied and often expressed assertion that there is a sinister motive and a selfish purpose behind our bills offered—with defeat for our reward. We have a chance to correct this misguided train of thought as no other profession has if we would only seize it. It is our individual responsibility and collective obligation to medical security, that we coordinate our forces and fight to retain and make secure the heritage that our predecessors so bountifully, unselfishly and sacrificially bestowed upon us. The spirit in which we do things is the reward we get in return. Making good our chance is the opportunity to succeed. Intelligence—coupled with work—means political success. This, to my mind, is logical.

We must counsel with each other calmly, quietly, singly and collectively, and I am persuaded to believe that we will recognize that there are changes going on, and will continue to go on, that are disturbing to us and will affect, if allowed to continue, the splendid relationship now existing between the physician and his patient. The basic platform upon which our profession will stand or fall is that sacred bond of professional friendship and confidence that exists between the patient and his physician which comes from the patient's right and privilege to select the physician of his choice.

We must not fall heir to compulsory insurance which leads to the panel practice of foreign lands that has proved such a colossal failure, bringing grief to the patient and physician and blocking the advancement of medical, surgical and public health progress.

We must protect our social structure against such economical fallacies and that protection can only come within our own ranks and not by misguided legislation by well-being philanthropists, or scheming corporations.



## DEPARTMENTS

The work of all departments of the institution functioned very satisfactorily throughout the year. The general personnel, though over-worked, were interested, enthusiastic workers, not clock workers. Departmental heads have shown a splendid cooperative spirit and a keen interest in all phases of the work and a determination to work with an ethical relationship with the county health officers and through the medical profession, and I take this public opportunity to thank the members of the Board of Health and the division heads for their intelligent advice, support and devotion to duty.

## DIVISION OF PREVENTIVE MEDICINE

You can't imagine the scope and magnitude of the duties of those directing the destiny of the Health Department during a session of the Legislature when so much is involved, such as bills introduced that may aid, cripple, or destroy the structure so carefully prepared and maintained by the concerted action of the medical profession. It takes all the ingenuity and business aptitude to retain or secure adequate appropriation so essential and so vital to its existence. Times such as these are hectic.

It is in a sense of great security to know that in Dr. G. M. Cooper, Assistant State Health Officer and Director of the Division of Preventive Medicine, that we have a man of rare ability, keen in observation, and a veteran in health activities who can steer us away from the breakers and keep us upon the calmer seas.

**MATERNAL DEATH RATE.** The maternal and infant death rate in North Carolina is a challenge alike to the medical profession and the State Board of Health.

The maternal death rate in the United States is 6.2 per 1,000 live births, and the maternal death rate in North Carolina is 7.1.

It is hoped that those doing obstetrics will establish a means of contacting each expectant mother and see that she has individual or group instruction on prenatal care.

There were 547 maternal deaths in North Carolina in 1934. In the preceding year, 1933, there were 534 maternal deaths.

It is too early yet to obtain comparison from other states for last year, but in 1933 there were only about seven other states which had a higher maternal death rate than North Carolina.

**INFANT DEATH RATE.** The infant death rate in the United States is 58.2 per 1,000 live births and the infant death rate in North Carolina is 66.0.

In 1934 there occurred 6,072 infant deaths under one year of age. (These are provisional reports. There will be some additions when the final reports are tabulated.)

These figures compare with 4,974 in 1933, or to make it plainer the rate for 1934 was 76.5 per 1,000 live births and for 1933, 66.0 per 1,000 live births.

Again, it is too early to compare our standing with other states for 1934, but for 1933, in which we had, as just stated, a great deal better record, only twelve states and the District of Columbia reported a higher infant death rate than North Carolina.

With one or two exceptions, the figures in all of them were just a point or two higher than our State.

The figures mean that for the year in which we made the best showing we have ever made, thirty-five states of the American Union made a better showing than we did.

It is a disgraceful and damaging situation.

It is hurting the State in a great many respects.

In our opinion, this situation cannot be ameliorated very much until we provide competent prenatal, obstetrical and post-partum care for the mother, and infant care, nursing and medical care for the new-born baby, especially during the first year of life.

Your State Board of Health officials are contemplating sending FREE of charge to each child born, an engraved birth certificate for framing.

Eighty thousand (\$6,600) of these certificates sent out each year will be a constant reminder that the new baby should have his or her first reward hanging on the wall of fame.

This, we believe, will give us a more complete birth registration and most important, it will enable us, through contact, to secure better nursing care, infant feeding, and early immunization.

**BULLETIN.** The Board of Health has for fifty years issued a monthly health bulletin. At present this bulletin goes to thirty-six thousand names. Some time ago, not being able to accommodate the increasing number of requests, the mailing list was revised by cutting off about three thousand names. We are anxious for any one who wants this bulletin to get it, and especially for any one who has been receiving it, whose name in this way has been removed, to let us know so that it may be reinstated.

Although handicapped for lack of printing funds, the bulletin has been kept up to a fair standard, as compared with other publications of like nature throughout the country. As an indication of the feeling a large number of people have for the Health Bulletin, we take the liberty of quoting the following paragraph from a letter to the State Board of Health received just a few days ago. The letter was written by an independent and influential citizen in his section, but personally a man unknown to the editor of the Bulletin or any of the official staff.

"Of the four or five papers we get at home the best is the State Health Bulletin, which costs nothing. The circulation of this Bulletin would alone justify your department."

### **DIVISION LABORATORY OF HYGIENE**

The work of the State Laboratory of Hygiene has grown gradually since its beginning in 1907. Within the past several months, the demands made upon the laboratory have increased markedly. This has been particularly true for serological examinations for syphilis and antirabic vaccine. Since there has been no compensating increase in the personnel of the laboratory,

we have been overwhelmed. In order that our reports might be dependable, it has been necessary to curtail certain items of service that those specimens which are examined might receive proper attention.

During the past year, the Laboratory has made approximately 15,000 Meinicke Clarification tests to supplement the 106,000 Wassermann tests performed. In order to aid in the early diagnosis of syphilis, a specimen container for chanere serum has been developed. Our limited personnel has made it inadvisable to give widespread distribution to information concerning this procedure. However, it is now possible for any physician in the State to send a specimen of chanere serum to the laboratory for Darkfield examination.

It is hoped that at an early date it may be possible for the Laboratory to prepare and distribute a limited amount of pertussis vaccine, prepared after the method of Sauer.

If the placental extract proves to be an effective prophylactic for measles, the Laboratory will probably be able to dispense this product.

In order to encourage the development of local laboratory service that would be helpful to the cause of public health, it is hoped that the State Laboratory of Hygiene may be able to distribute certain media, stains, and antigens to such laboratories.

We will utilize every opportunity made possible by increase in personnel, improvement of equipment, or increase in available funds, to give better service to the people of North Carolina.

#### **DIVISION OF COUNTY HEALTH WORK**

Local health work is in operation in fifty counties in the State at the present time, under full-time health workers. Of this number forty-two counties have the Public Health program under the direction of full-time health officers; the remainder being under the direction of nurses and sanitary inspectors.

In these forty-two counties, there are thirty-eight full-time health officers. We have in operation three district health departments, two of which have three counties to the district, the other, having two. It is our belief that the district plan of health service affords the only means for developing a Public Health program in those counties having small population and low assessed valuations.

By grouping such counties together in two or three county units, it is possible to provide a representative, well-rounded Public Health program in the area.

The 1935 Legislature has realized the necessity of providing for the establishment of such units, and has ratified an Enabling Act which will permit joint cooperation of counties and the State Board of Health to establish District Health departments.

The North Carolina State Board of Health has been fortunate in securing the cooperation of the United States Public Health Service, the Rockefeller Foundation, and the Tennessee Valley Authority in aiding with financial assistance making possible the establishment of a representative Public Health program in all of the counties and districts having a full-time health officer.

One of the major accomplishments in developing local Public Health service has been the establishment of a training school at the University of North Carolina, for health officers. There have been in attendance at the two sessions of the school thus far conducted, ten men, nine of whom were from North Carolina.

It has been definitely demonstrated that adequate training is necessary for public health workers, and it is hoped that in the future, we may continue training, not only health officers, but that we may plan to include special training for nurses, sanitary inspectors, and stenographers for their particular places in the Public Health program.

The United States Public Health Service and the Tennessee Valley Authority have realized that "Uncle Sam Has A Responsibility" to protect and safeguard the public health of his citizens, and we believe that the day is not far distant when all governmental units, including local units, will come to realize that public health is in fact, the science and the art of preventing disease, prolonging life, and promoting physical health and efficiency, through organized community efforts, as contracted, and differentiated from curative medicine.

#### **DIVISION OF SANITARY ENGINEERING AND INSPECTION**

During the past year opportunities for productive public health work through the Division of Sanitary Engineering have been increased far in excess of the available men and means with which to do this work. Much of this increase in work and opportunities for productive work has resulted from the Federal activities in combating the depression.

Through Federal financing new public water systems were installed in eleven towns, five other towns are building water purification plants, seven are installing new sewer systems, and ten are installing new sewage treatment plants at a total cost of approximately \$3,150,000.

Negotiations have been completed for new water systems at Fuquay Springs, Hemp, Hillsboro and Pittsboro. In addition, towns in all sections of the State having water works and sewerage systems have had them extended and improved.

While marked advance has been made in extending the sanitary facilities of running water and sewerage, much remains to be done. We still have sixteen towns of over 1,000 population without a public water supply or a sewerage facility. While there are twenty-one towns of 800 to 1,000 having water works, thirteen towns of that size do not have a public water supply, and fifty other towns of from five hundred to eight hundred population do not have such modern sanitary facilities.

Numerous schools have been provided with complete water-carried sewerage systems. More than 1,200 privies have been constructed at our public schools. This means that fully five hundred institutions of this kind have been provided with safe means of excreta disposal.

The most widely distributed of the public health benefits are the sanitary pit privies that have been constructed. During the past year there have been built by Federal labor, under direct supervision of the State Board of Health, 19,282 privies.

The construction of 19,282 privies means the providing of privies at only about 7% of our rural homes.

During the past year it has been almost impossible to make any routine water works or sewerage inspections, because of lack of funds. However, the Division sponsored and carried through another Water Plant Operators' School-Conference. This was held at Chapel Hill. The attendance and interest showed this feature of activity to be in real demand.

The creation of sanitary districts was completed at Knollwood, and another is in process adjacent to Lenoir.

Recognizing the health hazard involved, the Division of Sanitary Engineering has made considerable advance in swimming pool sanitation, a field hitherto untouched. Typical designs and specifications, together with recommendations for the design of swimming pools, have been developed for the use of architects and engineers. To aid in the regulation of swimming pool sanitation by local health officers, suggested rules and regulations for passage by local health boards have been devised. During the year the State Board of Health has cooperated in the design of about twenty-five swimming pools.

About a year ago the U. S. Public Health Service announced its first list of cities and towns having a rating of 90% or more on milk sanitation. On this list North Carolina appeared second, with twenty-four towns to Alabama's twenty-seven towns making places on this 90% list or Honor Roll. During the entire year of 1934 it was possible to find time to make municipal ratings at only seventy-four of our 104 towns now operating under the Public Health Service Milk Ordinance, by reason of the rush of other duties. These ratings, however, showed that North Carolina had advanced from second to first place, with twenty-nine towns on this "Honor Roll."

It will be interesting to note that North Carolina has more cities and towns now operating under the Public Health Service Milk Ordinance than any other state, except Texas.

During the past year the ERA has made it possible to accomplish much in reducing the malaria hazard in North Carolina. During the twelve months period ending March 1, 1935, malaria control activities were carried on in fifty-seven counties. An astounding amount of work was done, as is indicated by the following: 376 miles of canals and ditches were either cleaned out or excavated; 1131 new ditches were excavated; 1306 ponds, comprising 1565 acres, were drained, and approximately 15,052 acres of swamp land were drained.

In addition to the above, extensive house screening campaigns have been conducted in several counties, and other types of malaria control measures have been carried out.

### **DIVISION OF EPIDEMIOLOGY**

During the year 1934 the outstanding activities have been largely those concerned with malaria control. In the summer of last year an epidemic of rather malignant malaria occurred in Camden County, which, of course, increased the consciousness of citizens to the necessity for control measures,

due to publicity given by newspapers. During the year approximately 10,000 blood smears for malaria examination were taken in eighteen counties. The percentage of positives found varied with the communities, from approximately zero to forty-six per cent. It must be remembered that these were taken in the season when malaria was not prevalent, from December to April. Malaria control activities have been carried on in fifty-seven counties through the cooperation of the North Carolina ERA, the United States Public Health Service and this office; approximately 500 projects approved; 220 completed; 120 now under construction. Approximately one million of the State's population has been affected by this progress, with 300,000 given adequate protection against malaria and pestiferous mosquitoes.

Typhoid fever was less prevalent in 1934 according to reported cases, and the recorded deaths showed the fewest individuals dying (88) from this disease since records have been kept.

The venereal diseases have not received the attention due them. Their incidence is increasing and treatment facilities are remaining at a standstill or are decreasing. Time and money must be given if their control is ever to be accomplished. The North Carolina ERA has spent \$5,000 for drugs in the State for the treatment of those on relief rolls.

Case reports received in this office in 1934 amounted to 92,534. These were tabulated according to county, city, month of occurrence, age, color and sex. Measles was epidemic this year in the greater part of the State.

### **DIVISION OF ORAL HYGIENE**

One of the outstanding features in our educational program was the presentation of the mouth health puppet play, "Circus or Bust," put on through the cooperation of the Good Teeth Council for Children, Inc., and the Carolina Playmakers. During the five weeks this show was on the road we played to 46,800 children.

As you know, and as we want the public to understand, we are not operating a free clinic, but are teaching Mouth Health in the schools. The corrections made by this department are used as visual instruction and is termed "demonstrative teaching." The corrections are confined, insofar as possible, to children whose parents are unable to have the necessary work done through the regular channels. The total number for whom corrections were made for the entire school year was a little more than one-half of the enrollment in the first grade.

The dental program as is being carried to the people of North Carolina by means of Dr. Ernest E. Branch's ingenious puppet play, "Circus or Bust," is doing more than any one thing I know to make the children, as well as the adults, become health-conscious. It would be well to imitate that "old bird" and carry, in a similar way, other branches of preventive and degenerative diseases to our citizenry.

Education through evolution is almost as slow as growth through instinct, yet demonstrative education, to my mind, is the more effective and lasting. "As the twig is bent, the tree is inclined." Teach the youth and they will remove the kinks, fear, instinct, prejudice, ignorance, and indifference from the older members of society.

The youth of today will be our legislators of tomorrow and before tomorrow comes we should be instrumental in making them realize that health is a basic element of human development and good government which is so essential to our prosperity and happiness.

### DIVISION OF VITAL STATISTICS

The Bureau of Vital Statistics is endeavoring to make our vital records of more practicable use to the public health workers, physicians and citizens of the State. The reporting of births and deaths is more nearly complete and a better quality of certificate is being secured.

To make the location of a certificate more certain and require less trouble the office procedure has been improved by instituting the practice of photostating the visible index. These photostatic copies form the permanent index. Additional copies may be made readily at future times. With the assistance of the North Carolina ERA, a five-year index, 1928-1932, has been completed for approximately two-thirds of the half-million and more names.

In January of this year a campaign for the promotion of birth registration was carried on by the State Board of Health, the U. S. Bureau of the Census, and the Emergency Relief Administration. Enough cards were placed in the post offices for one to be delivered to every family in the State. Any family in which a birth had occurred within the last year was asked to return the card with enough information concerning the birth to enable the records to be checked to determine if the birth had been recorded. Approximately 30,000 cards were returned and verified with the records in the Bureau of Vital Statistics by the clerks in the office supplied by the ERA. Nineteen field workers canvassed the State for six weeks, visiting the local registrars, physicians, midwives, and undertakers in an attempt to improve the reporting of births and deaths. Some improvement has been shown and more is expected.

The Bureau of Vital Statistics received 114,000 birth and death certificates for 1934. This was approximately 9,000 more than for the previous year, and exceeded any year since 1928. There were 4,028 more births and 4,838 more deaths than during 1933, which accounted for an increase in the birth rate from twenty-three to twenty-four and in the death rate from 9.3 to 10.6 per 1,000 population. This was the highest death rate since 1930. There was an increased number of deaths from nearly all causes. Among the exceptions to this were the fewer deaths from typhoid fever and the slight improvement from tuberculosis. Typhoid fever deaths decreased from 128 in 1933 to 88 in 1934, and tuberculosis from 2,110 to 2,092.

Among the diseases contributing to the increased death rate were such conditions as diarrhea and enteritis, measles, whooping cough, pneumonia, maternal and infant deaths, syphilis and pellagra. There were 4,974 infant deaths in 1933 and 6,072 in 1934, an increase of 914. Taking into consideration the more than 4,000 additional births for 1934, the rate still showed an increase from 66.0 to 76.5 per 1,000 live births. The maternal death rate was approximately the same as for 1933.

The State Board of Health is concerned deeply in the economies of the medical profession and sincerely believes that the individual members of the profession should be aroused to the importance of an interlocking relationship which should, with your active cooperation and collective support, be made to enhance its service to humanity and become your greatest advance agent in educating the people that health is essential to well-being and that it is wise to purchase it.

As Health Officer, I will dedicate myself, my time, and whatever talent I may have, to constructive health work. I will be true to your trusteeship, I will be ethical and loyal to the medical profession, I will endeavor to render a distinct service to the people. Bear in mind, however, that the State Board of Health is a creature of your making and its activities are controlled by members of your Board who were selected, not by or through an appointive committee, but by the entire membership and by secret ballot. Its function is to carry a message of health-protection and health-preservation, not for profit but for the public's good, ever mindful of the profession, striving always to be guided by and through the State Medical Society. The State Medical Society is the medical mind and should direct medical policies and solve medical problems.

### SUMMARIZING

1. We ask your assistance in carrying out the policies in the platform for the preschool child.
2. We desire to emphasize the importance of medical legislation representation.
3. We make a plea for more adequate maternal and prenatal care.
4. We desire to send free of charge to every child born, a birth certificate.
5. We hope to make available an improved pertussis vaccine.
6. Serum for measles.
7. A better test for syphilis.
8. We call your attention to the rise in the maternal death rate, seventy-seven per cent of which is preventable.
9. We call attention to the mounting operative mortality from appendicitis.
10. We call your attention to the increasing death rate in the degenerative diseases.
11. We beg of you to make a general survey of the causes, and carefully study the situation for a united effort, on the part of the medical profession, to correct this condition.
12. It has been suggested that a hospital group study of all such deaths would be enlightening and much could be accomplished to improve a serious situation.
13. We desire to remind you of the establishment of a Training School at the University of North Carolina for health officers, and the contemplation of the establishment of a Training School at the University of North Carolina, including training for public health nurses, sanitarians and secretaries.
14. The 1935 Legislature gave us an Enabling Act which will permit the forming of District Health Departments.



## ANNUAL REPORT NORTH CAROLINA STATE BOARD OF HEALTH TO

### CONJOINT SESSION STATE MEDICAL SOCIETY

By CARL V. REYNOLDS, M.D.  
Secretary and State Health Officer  
May 6, 1936.

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In my report to the Conjoint Session this year it is my purpose to deviate from the usual formal report of the activities of the Health Department during the year.

In its stead it is deemed appropriate to discuss with you plans for the future.

#### HEALTH FEATURES CONTAINED IN THE PROPOSED FEDERAL LEGISLATION COMING OUT OF THE SOCIAL SECURITY ACT

When the 74th Congress enacted into law H. R. 7260, an Act known as the Social Security Act, provision was made therein to aid the states in raising the standard of all public health activities.

Personally, if I were giving a title to the Act it would read "Man's Humanity to Man."

North Carolina's benefits derived from such an appropriation are best set out in Title 6, Section 601. "For the purpose of assisting States, counties, health districts, and other political sub-divisions of the States in establishing and maintaining adequate public health services including the training of personnel for State and local health work, there is hereby authorized to be appropriated for each fiscal year, beginning with the fiscal year ending June 30, 1936, the sum of \$..... to be used as hereinafter provided."

"The amounts of such allotments shall be determined on the basis of the population, special health problems, and the financial needs of the States.

"The moneys so paid to any State shall be expended solely in carrying out the purposes specified in Section 601, and in accordance with plans presented by the health authority of such State and approved by the Surgeon General of the Public Health Service."

Your State Board of Health has complied with all requirements, and plans have been approved by the proper authorities in Washington, and the money is now in the State Treasury subject to check for carrying out the projects.

There has been an immense amount of study and thought given to the ways and means of securing the best results to the greatest number out of the funds secured.

It is realized, too, that such Federal funds are not to replace existing State, county, or municipal funds but ONLY to SUPPLEMENT such funds.

To accomplish best results certain minimum standards were set up for medical officers, nurses, engineers and sanitarians.

**MEDICAL OFFICERS.** Basic educational requirements shall be (a) degree of "Doctor of Medicine," (b) Candidate shall not be more than 35 years of age when first specializing in public health work. (c) Personnel selected shall already have had a graduate course of instruction in public health of not less than three months duration in a University. For health officers of jurisdiction having population of more than 50,000, not less than one year in residence at a recognized University School of Public Health, is required.

The above requirements guarantee us that only men of the proper education and experience shall be employed as medical officers. Similar qualifications are demanded of nurses, public health engineers, sanitarians and sanitary officers.

The law provides for the development of demonstration services in needy areas and among groups in special need. It provides for cooperation with the medical, nursing, dental, welfare, and other groups. It is designed as a long-range plan. It is aimed to improve methods of administration and care for expectant mothers, for women in confinement, and for babies. The law itself provides, and the Children's Bureau at Washington, which is the national administrative agency, feels, that emphasis should be placed on the development of minimum health services for those unable otherwise to obtain such services. It hopes to make available the fundamentals of health education, which will eventually lead to adequate maternal child care in every section of the State.

The new improvements, additions, and divisions arising out of the Social Security Act to be set up in your State Board of Health are: (a) grants in aid for Central Administration; (b) grants in aid for generalized public health work; (c) grants in aid for Maternal and Child Hygiene, (including Dental Hygiene); (d) grants in aid for Crippled Children; (e) grants in aid in Industrial Hygiene; (f) grants in aid for the regional teaching unit at Chapel Hill.

On January 1, 1936, through the cooperation of the Julius Rosenwald Fund, a colored physician was added as Field Agent to work, on request of local health officers, among the negro population in a program of public health education. The program is outlined by the local health officer and the Field Agent is responsible to the local director of health while on assignment in their department. This is the first service of this type to be rendered in the United States. The State Board of Health has received many letters of commendation from leaders in the negro race, showing their appreciation for the type of work which Doctor Hughes is doing among their people.

With these added responsibilities we desire to make this statement,—all activities are directed, supervised, and controlled by the best qualified medical personnel available, always mindful of the importance of the ethical cooperation and proper relationship with the medical profession.

The passage of the Social Security Act, State aid to counties, funds for the erection and maintenance of a tuberculosis sanatorium, and the Industrial Hygiene Act, are recognitions that government has a definite responsibility in the prevention of disease and the preservation of health. It is a recognition that there is an intra and inter-state and national relationship

that is so interwoven and inter-dependent that to neglect a part you neglect the whole.

We are on the threshold of a new and brighter era and it is the dawn of a new day if only we will seize the opportunity to guide, direct and control policies. All of us recognize that health security is basic in importance to human happiness.

We must appreciate the fact that our people are not receiving or accepting the services available.

We must appreciate the fact that they need it and should have it. Then let's submit a workable plan that will retain our individuality and give to the patient the right to choose his medical or surgical advisor.

This can, and to my mind, must be accomplished if our proud heritage is maintained. We realize that health is basic in social and economic security.

We realize that our citizenry is not availing itself of the protection obtainable through the advances made in medical science.

We must realize this condition is not as it should be and that social insecurity must be appeased.

We must realize that it is imperative to adjust ourselves to the new order of things. We do appreciate that it is American for our children born to have equal protection against infectious diseases and to be physically and mentally fit to compete for their place in the world.

We must prevent the preventable—correct the correctible—cure the curable.

To accomplish such a program it is essential to have the cooperation of the parents and guardians; physicians and dentists; governmental agencies; and public health officials.

I am persuaded to believe that it is logical reasoning to assume that we can accomplish nothing through rebellion. We must recognize the truth and the truth must be accepted.

To regiment medical service is to destroy its efficiency.

To preserve medical service to its present standards and promote its continued growth, we must encourage, foster and stimulate individual attainments and recognize it by a compensation commensurate with its importance.

To prevent regimentation, we must not only devote ourselves to the science of medicine and the demands of our practice, but we shall recognize that selfish individualism is hazardous and that mass protection is the necessary element in social security.

There must be a relationship between the practicing physician and public health administration,—a correlation and coordination of our activities that will serve to the best advantage to the whole people. In this manner, we can, as M. Edouard Herriot interprets Doctor Sands' efforts, attempt "to make progress serve us instead of enslave us."

If you will give us a personnel of men and women of talent, courage, patience, character and determination, we will utilize this epoch-making opportunity to its greatest advantages.

## DEPARTMENTS

To present to you a brief outline of our new activities, disregarding a review of our regular and normal functions, is a tedious undertaking, but its importance is of sufficient consequence to justify your time and attention, and ours in its preparation.

### DIVISION OF PREVENTIVE MEDICINE

New work in the Division of Preventive Medicine is either launched during this fiscal year or planned for the next. With funds now available from the Children's Bureau under the Social Security law, an expansion of the division work is made possible. The principal expansion is in the health education work and in the extension of maternity and infancy work.

In health education work an assistant director has been engaged who commenced work on February 20th. In addition to assisting with the routine work of the division, the assistant director is already supplying a special article once a week for about twenty of the afternoon newspapers and one for about eight of the Sunday morning papers of the State. These articles carry helpful information on a variety of health subjects. They also provide definite information about the work of the various departments of the State Board of Health.

An additional clerk for work in the mailing room will be employed. This will assure even more prompt attention to requests for literature than in the past. An additional supply of literature, both of special publications of the State Board of Health and of the Children's Bureau at Washington, will be made available.

The Children's Bureau has approved the establishing of about sixty centers for prenatal and infant care work. The centers to be established in counties having whole-time health officers will, of course, be under the direction of the whole-time health officers. Some aid in establishing additional facilities in a few whole-time county health departments is provided for.

The centers to be established in unorganized counties will be directly supervised from the department, cooperating with the local county authorities and the county medical profession. Nothing new or radical is to be undertaken in these centers, but simply the extension and expansion of work which has already proved its value in many cities and counties.

An additional nurse has been provided for each of the six whole-time county health departments. In addition to that, about fifteen additional nurses will be provided for work in unorganized counties. These nurses will all carry on a general public health program, as just stated, under the supervision of the State Board of Health and in cooperation with the local authorities including the medical profession. By providing competent medical prenatal service, it is hoped that a large class of women now served only by midwives will avail themselves of the services of physicians at confinement. The medical assistance of general practicing physicians, pediatricians, and specialists in obstetrics will be secured as needed in this extension work.

Every effort will be made to cooperate with the welfare authorities in

each county where this work is carried on, to secure through their facilities the hospitalization and the medical treatment for confinement cases and for babies needing such care. The work, however, of the Board of Health will be strictly along public health lines and on a preventive basis. The division will cooperate in the closest manner possible with the practicing physicians in all localities where work is to be undertaken.

### **DIVISION OF ORAL HYGIENE**

Mouth Health Teaching as carried on by the Division of Oral Hygiene is proving its worth as an integral part of our Public Health Program. This Division is directing its activities to the field of prevention by conducting an educational program in the schools of the State. The staff has been increased this year due to the fact that we have been able to induce appropriating bodies in counties and individuals to make additional funds available. This money we speak of as funds from outside sources.

Mouth Health Programs were conducted in thirty-eight counties and three city units during the school year just closing. The dentists go into the schools and teach Mouth Health didactically. Then they examine the teeth of all the children, make the necessary corrections for as many indigent children as possible, and refer the other children, by cards mailed to their parents, to their family dentists.

Let us give one concrete and very striking example of what is being accomplished by this Division in the field of prevention. Our records show that in an isolated county, in which there is no dentist, six years ago, upon our first visit to the county we had to extract forty-seven permanent teeth in one school. This county has had a Mouth Health Program each year since our first visit, all of the schools being visited each year. In the Program just finished in this county there was only one permanent tooth to be extracted in all the schools, and this was done for a child who had moved into the county during the present school year. This should be satisfactory evidence to all concerned that Mouth Health Teaching does pay and that it has a place in every Public Health Program.

To further and make more effective our Mouth Health Teaching we employ many methods of Visual Education, one of which is a Puppet Show, "Circus or Bust." During this school year we have played to approximately five hundred and forty schools. We invite the children to write to "Little Jack," the hero of the play, and ask them to mention the four rules of Mouth Health emphasized in the show. "Little Jack" has received and answered thousands of these letters. It is needless for us to call to your attention the worthwhileness of this direct tie-up between the children and the State Board of Health, or to the propaganda of a constructive nature that this activity has set loose.

The outstanding achievement of this Division for the year 1935-1936 is the arranging for a course of Public Health Dentistry to be taught in the School of Public Health of the University of North Carolina. This is the first School of Public Health in the United States or abroad to train dentists.

We are grateful to the medical profession for their cooperation and encouragement and bespeak for the Division of Oral Hygiene the continuation of their interest and support.

As for our future plans, hopes and expectations, we would say that we expect to continue to grow, expand, and develop along our present lines as rapidly as funds, sound judgment, and opportunity will permit.

### **DIVISION OF COUNTY HEALTH WORK**

New health services have been established in Macon, Graham, Orange, and Hertford counties.

All local health units with aid of Social Security Funds will have full-time health officer, two public health nurses, a sanitary officer, and a clerk, as a minimum.

**TRAINING OF RESERVE PERSONNEL.** Through the cooperation of the University of North Carolina and the North Carolina State Board of Health, there has been established a Division of Public Health in the University of North Carolina. The establishment of this Division in the University of North Carolina marks the development of the first cooperative public health division in the United States. This Division at the University of North Carolina has been designated as the Regional Training Center for United States Inter-State Sanitary District Number Two, which embraces eight states and the District of Columbia. Heading this Division of Public Health is Dr. Milton J. Rosenau, formerly of Harvard University. Since he assumed the directorship of the Division, two courses of instruction have been offered, the first beginning on January 15th with four health officer trainees enrolled from North Carolina; the second course began on March 23rd with a total enrollment of fifty-one, including fifteen medical health officer trainees and thirty-six sanitation personnel trainees. These trainees are enrolled from Delaware, West Virginia, Virginia, South Carolina, Georgia, Florida, and North Carolina. North Carolina has four health officer trainees and eleven sanitation personnel trainees.

The establishment of the Division of Public Health at the University of North Carolina is the first to train both health officers and sanitation personnel in comparable courses in the United States.

Nurse trainees are being trained at George Peabody College for Teachers and in the St. Phillips Division of the Medical College of Virginia. A total of fourteen white nurses are enrolled and four colored nurses.

These various training courses are of three months duration. Upon the completion of such courses, all North Carolina trainees will be assigned to a field training center which has been designated as the Orange-Person District Health Department and the Durham City-County Health Department. Personnel will be assigned to this field training center for one month to become acquainted with the public health practices and laws of the State of North Carolina.

**ADVISORY SERVICE TO LOCAL HEALTH UNITS.** Provisions have been made within the Division of County Health Work for a Consultant in Public Health Administration, a Consultant in Public Health Nursing, a Consultant

Engineer, and a Consultant Statistician for the purpose of advising with local health units in developing local public health programs and raising the standards of service rendered.

### THE DIVISION FOR CRIPPLED CHILDREN

The Division for Crippled Children was established as a service of the State Board of Health on April 1, 1936, for the purpose of coordinating and broadening activities in the State in behalf of the crippled child. Its establishment is in furtherance of plans developed over a period of several months to provide a means of cooperating with the Crippled Children's Division of the Children's Bureau, U. S. Department of Labor, in the administration of the provisions of the Social Security Act. It has been developed in conjunction with the North Carolina Annual Plan for Crippled Children, a brief outline of which follows:

**OBJECTIVES:** To locate and register all crippled children, provide treatment for the indigent type and follow-up to the age of twenty-one years.

**DESCRIPTION OF PLAN:** (a) Financial participation through state appropriations to the Orthopedic Hospital and State Board of Health Orthopedic Clinics. (b) State Board of Health has been designated as the official State agency. (c) The central registration bureau has been set up in the offices of the State Board of Health. An Advisory Committee composed of representatives of the North Carolina Orthopedic Hospital and the medical, public health, nursing, social welfare, vocational education, and civic leadership of the State has been organized to act in an advisory capacity and to promote the cooperation of medical, public health, and welfare groups. Administrative activity for the needy crippled child will entail the operation of established clinics, providing hospital care and treatment, convalescent care and supervision. A division of the State Board of Health, under a medical director, staffed by a State Supervisor and two assistant field supervisors and a whole-time secretary, has been established. The established State clinics will continue to be operated under the State Board of Health with the Local Advisory Committees promoting the work of these clinics as units of the State Plan.

**NEEDS OF CRIPPLED CHILDREN.** The greatest need is the establishment of additional hospital beds supplementary to those available at the North Carolina Orthopedic Hospital. There are 1,200 examined crippled children in the State awaiting hospital care at this time.

The objectives of the State Board of Health through its Division for Crippled Children are:

A. To locate crippled children.

1. Establish a registration bureau in the State Department of Health.
2. Transcribe existing registrations of cripples.
3. Utilize services of local health, welfare, and school officials in the location and registration of crippled children.

- B. To secure expert diagnosis for these children in all parts of the State.
  - 1. Established clinics.
    - a. Twelve State clinics.
    - b. Two N. C. Orthopedic Hospital clinics.
  - 2. Promote diagnostic clinics in isolated rural sections where need is indicated.
- C. To provide expert treatment and hospital care.
  - 1. Clinics.
  - 2. Hospital care.
    - a. N. C. Orthopedic Hospital for children under sixteen years of age.
    - b. Selected general hospitals.
- D. To establish a field supervisory and follow-up service.
- E. Engender public interest in the problem of the crippled child and encourage the recognition of its responsibility to create opportunities for the development of this group into as normal and useful life as possible.
  - 1. Through local health and welfare agencies.
  - 2. Through civic organizations.

Federal allotment from the Crippled Children's Title of the Social Security Appropriation was received on April 21, 1936, and after setting aside certain sums for administration, payment of professional services, and a reserve for special type and emergency cases, it is estimated that there will be funds available for approximately 9,500 days' hospital care annually. In order to arrive at a distribution of this hospital care equalized between the various clinics operated in the State, we are allotting 1,050 days' hospital care to each Orthopedist cooperating in the North Carolina Plan for the care of the crippled child. We are giving notification to the clinical surgeons of the availability of these hospital days and requesting that each recommend several cases which have been registered in the State clinics and who are at the present time awaiting arrangements for hospital admission. As soon as this information is available, admissions will be arranged with the hospitals and the actual treatment of these cases gotten underway.

### **DIVISION OF INDUSTRIAL HYGIENE**

During the past year work in industrial hygiene has been inaugurated to extend the benefits of preventive medicine to the million and a quarter North Carolinians who are engaged in industry. The initiation of this important public health activity was made possible by the State Industrial Commission which employed for the purpose funds appropriated for the administration of the Occupational Disease Act. The continuation and broadening of this activity is assured by an additional appropriation of money received from Social Security Funds allotted to the U. S. Public Health Service for distribution to the several states.

Although several other states have engaged in industrial hygiene work on a limited basis, North Carolina is the first State to undertake a program sufficiently comprehensive to include pre-employment examination of workers and engineering and medical studies of plants. The importance of such a



program is evidenced by the fact that 18 other states are engaged in or are committed to engage in this work. A happy situation exists in North Carolina in that since its establishment our Division of Industrial Hygiene has had the hearty cooperation of the State departments concerned respectively with labor, insurance, and workmen's compensation.

By far the greatest occupational disease hazards in the State are those created by siliceous dusts, exposure to which results in the development of asbestosis and silicosis complicated with tuberculosis. The first undertaking of the new Division, therefore, was a survey to determine the extent of the dust problem. During the fall of the past year 103 plants were visited. There were 4,406 persons employed in these establishments, and of this number 60% were found to be exposed to siliceous dust hazards. Measures for the control of dust were found to be provided for only 12% of the workers that are exposed to such hazards, and even they are not protected since in many instances such control devices as were found were either not regularly used or were inefficient. More than 75% of the workers in the granite, mica, feldspar, talc and asbestos textile industries are exposed to siliceous dust hazards. The survey covered only a portion of the siliceous dust industries of the State, but enough plants were visited to make the results representative of conditions existing generally in the dusty trades.

In addition to the preliminary survey, the Division of Industrial Hygiene cooperated with the U. S. Public Health Service in making a detailed study of the occupational disease hazards in five asbestos textile plants. Their investigation involved the clinical and X-ray examination of 500 workers and a study of their working environments including a determination of the number and size of dust particles in the air. Following this research, our personnel made a similar study of a granite cutting establishment involving 40 people.

The work of the department is to consist of plant studies and pre-employment examination of workers. The plant studies will include a clinical and X-ray examination of all employees, and an engineering and chemical evaluation of their environment. The pre-employment examinations of workers will be confined to those industries which have been designated as subjecting the workers to siliceous dusts. It will include X-ray and clinical examinations of prospective employees. Much of this work will be performed in industries about which nothing is known with respect to the occupational disease hazards to which workers are subjected. The Division should produce results which will be of general value to both industry and medicine.

### **DIVISION OF EPIDEMIOLOGY**

If a conquest against an infectious or curable disease that is controllable is successful we must have the concerted support of organized medicine, the public health personnel, interested social workers, and the press to impress upon the people the necessity of taking advantage of opportunities available to them. It must be remembered that our people are not receiving or accepting protective agencies that are available. Smallpox, diphtheria and typhoid

fever are great examples of communicable diseases that could be exterminated. Tuberculosis, certainly could be reduced to a minor consequence.

The one outstanding preventable disease that challenges the ingenuity of the medical profession, and particularly public health officials, is the control of syphilis—a controllable disease that is fast becoming the “captain of death.”

We, as physicians, should report our cases promptly and insist upon the infected cases being treated until cured. We should seek the original source of infection and cause him or her to be treated. We should forget syphilis as a loathesome and unmentionable venereal disease and classify it as an inherited or accidental infectious disease to be treated and controlled by medicine available as any other communicable disease. We should make known in no uncertain terms the dangers arising from lack of control, and it is the duty of the press and radio to broadcast this information. A determined and concerted action through this informative group will do away with tabooing of such important information.

The prevention of venereal disease in Sweden, Denmark, Norway and Great Britain is making grand and telling advancement. The law of control was established in Sweden in 1919. In Sweden's six million population “6,000 new cases were reported in 1919;—431 in 1934.

“During the last year about a fourth of the new cases were infected abroad. Of 431 cases 110 occurred in Stockholm, 212 in other cities containing a total population of 1,500,000 inhabitants and 109 cases were in rural districts containing a population of four million inhabitants.”

I shall now give a short account of the requirements of the law against venereal disease in Sweden for your consideration and thought. The law contains the following principal points:

1. Every person suffering from venereal disease must submit to treatment by a physician and must follow his directions.

2. Every such person has the right, irrespective of the size of his income, to obtain free medical treatment and medicine, in case he is not being treated by a private physician. This includes free injections, free serologic examinations, as well as free certificates required by the public health authorities as to complete recovery or continued treatment. Hospitalization in a special general ward is also furnished free of charge.

3. Every physician treating a new case of venereal disease must try to obtain information about the source of infection.

4. Against patients, who do not properly follow up their treatment, and against individuals identified as the source of infection but unwilling to come to treatment, certain compulsory measures may be taken.

5. A person who knows that he or she suffers from venereal disease and who by carelessness causes its transmission, is subject to punishment of a severity up to forced labor.

6. Every marriage partner prior to obtaining a marriage license has to sign a statement certifying his or her freedom from venereal disease in a contagious stage.

7. The local public health authorities must publish information about the existence of the clinics for the treatment of venereal disease.”

The Division of Epidemiology expects to add to its staff a competent physician to direct the venereal disease control program, which is to be developed through Social Security funds. The details of the plans for this program are to be worked out later. Suitable motion picture equipment, projector and films, have been purchased to augment this work.

The North Carolina State Board of Health, in cooperation with the Rockefeller Foundation and Vanderbilt University, is conducting an intestinal parasite survey, especially for the purpose of determining the number infested with hookworm. Seventy of the 100 counties in North Carolina are to participate in the survey.

The encouragement of better reporting of the various notifiable diseases is an aim of the central office. If control measures are definitely known, delay in reporting would cause a loss of valuable time in the application of these measures during the time of an increased prevalence of any one of these diseases. For example, during our poliomyelitis epidemic, had we had definite known measures to control the disease, this office would have been greatly handicapped in applying such measures due to the fact that the average delay in reporting cases was between three and four weeks.

The services of the Director of the Division are available for consultation relative to any unusual disease situation.

### THE MALARIA CONTROL PROGRAM

Approximately \$600,000 of the Federal Relief funds in North Carolina was spent between May, 1935, and May, 1936, for labor, supervision, engineering, material, supplies and equipment used on projects involving the control of malaria in this State. This program was a continuation of the work which was started in 1933. It has progressed consistently throughout the entire relief program in North Carolina. At present it is financed by the WPA. The work has been calculated to remove the breeding areas of anopheles mosquitoes (malaria-carrying) from over 300,000 North Carolina citizens. It should prove to be of immense value from both the public health and economic standpoints since in recent studies, scientists have evolved the fact that the earning capacity of a territory ridden with endemic malarial fever is only two-thirds that of a similar territory free from the disease.

Reports from practicing physicians and also the results of several slide surveys taken under the supervision of State Epidemiologist Knox indicate that malaria has for the past three years been definitely on the increase in North Carolina. However, a study of last year's vital statistics of malaria reveal that in the counties which participated in the malaria control program a 16½ per cent decrease in proportion of deaths from malaria since the work was initiated in 1933, was experienced.

It is well to mention several of the larger jobs. In Rowan and Iredell counties, one project involves the use of five dredging machines in addition to the labor of a large number of relief clients. The ponds and swamps which have afforded breeding places for malaria vectors will be removed from the proximity of over 40,000 people. A blood slide survey taken in mid-winter gave a positive reaction of over 13%. Similar projects have

been started in Pitt and Forsyth counties. Small, but equally important hand drainage projects have been carried on in practically every county in the malarious belt of North Carolina.

It is expected that this program will be continued as in the past. An average of over 2,000 men have been used in malaria control work. Over 25,000 acres of ponds, swamps and other breeding areas for anopheles mosquitoes have been removed from North Carolina by approximately 900 miles of ditches and canals.

### DIVISION OF SANITARY ENGINEERING

The Division of Sanitary Engineering has been active in promoting sanitary projects for which Federal aid could be secured.

It is estimated that over 10,000 people will have been provided with clean, safe public water supply and water-carried sewerage, and water and sewerage facilities for over 90,000 more will have been enlarged or improved.

Under the WPA, it is estimated that between 100 and 200 small water works and sewerage extensions and improvements have been made.

It is felt that by means of such extensions many thousands of urban dwellers are now accessible to water lines and sewers that were not accessible to them before.

In addition to the water and sewer improvements, plans and specifications have been approved during the past year for approximately 11 swimming pools. This means that a real beginning has been made in the safety and sanitation of swimming pools throughout the State. In place of the "ole swimmin' hole" and the common public bath tub, we are now beginning to have sterilization and re-circulation of our pool water, and general swimming pool sanitation in conformity with the best modern practice.

North Carolina is leading all the other states in the number of cities and towns enforcing the Public Health Service Milk Ordinance with an efficiency of over 90%. Sketches, plans and engineering assistance have been furnished from which at least 17 new pasteurizing plants, 99 new dairy barns, and 124 new milk houses have been built during the year.

The number of privies constructed by the Federal relief agencies in North Carolina is shown by the following table:

Privies constructed by CWA .....	39,256
Privies constructed by ERA .....	22,833
Privies constructed by WPA and NYA through April 15, 1936 .....	8,000
Total privies constructed since beginning of CWA .....	70,089
Privies constructed during period April 1, 1935, to April 1, 1936:	
By ERA .....	12,667
By WPA and NYA .....	6,046
Total for year ending April 1st, 1936 .....	18,713

If all the privies built in the State since December 1, 1933, were placed side by side they would span a distance of 80 miles.

The average person would probably believe that 70,089 privies is sufficient to completely sanitize North Carolina's rural homes. Unfortunately, this is not true, and the surface has just been scratched in community sanitation work in this State.

A survey of 12 representative counties in North Carolina made by the Extension Division of the Home Demonstration Work of State College, before the work relief privy construction program was started, resulted in the following summation:

Rural homes with no toilet facilities	33%
Rural homes with insanitary toilets	53%
Rural homes with sanitary toilets	14%

The 70,089 privies built since December 1, 1933, is 19% of the 375,000 estimated homes. You cannot assume that one-third of the rural homes in the State have sanitary means of excreta disposal. This assumption would not be true since the community sanitation work, in many cases, was confined to small villages and population centers not classified as rural districts.

At the present time we have WPA Community Sanitation projects operating in 75 counties and NYA Community Sanitation projects which supplement the WPA projects, operating in 19 counties. These projects are employing about 1,000 men and are constructing approximately 3,000 privies per month.

Assuming that only 20% of the rural homes are sanitized we now have approximately 300,000 homes without a sanitary toilet. At the present rate of 3,000 privies per month being constructed it will require 8 1-3 years to provide all of North Carolina's rural homes with a sanitary privy.

### DIVISION OF VITAL STATISTICS

The Division of Vital Statistics recorded 33,205 deaths for 1935. This represented 10.1 deaths for every 1000 estimated population, a rate slightly lower than the 10.6 for 1934. In round numbers there were 1,400 fewer deaths from all causes than for 1934. There were fewer deaths from typhoid fever, measles, scarlet fever, whooping cough, diphtheria and tuberculosis among the infectious diseases. Influenza and pneumonia accounted for approximately the same number in 1935 as for 1934. Pellagra and diarrhea and enteritis under two years of age showed a decline. There were 67 deaths from poliomyelitis. This was three times as many as was caused by this condition in 1934. However, in comparison with many other infectious diseases it was a minor cause of death. There were 800 fewer puerperal deaths. On the other hand such conditions as cancer, heart disease, and diabetes mellitus show no such improvement, but in some instances actual increases were shown. Accidental deaths as a group increased, automobile accidents alone accounting for 100 more deaths than for 1934.

In 1935 there were 79,746 live births, approximately 200 more than for 1934. This represents over twice as many births as deaths and would indicate in general a healthy growing population.

The Division of Vital Statistics has been equipped with the most modern indexing and record keeping systems. The 10,000 certificates received

monthly are completed, arranged, indexed, transcribed and tabulated. In addition to the routine work, both interpretative and clerical, the Division of Vital Statistics handles an increasingly large number of special requests. Numerous tabulations are made for special studies being conducted by staff members or other individuals. To assist with the routine duties and to enable the Division of Vital Statistics to compile more detailed reports promptly after the certificates are recorded three additional employees are being secured. This will enable the Division to issue detailed monthly reports in time to be of current value to the health worker and the practicing physician.

More use is being made of these vital records as is evidenced by the numerous requests for this type of information, and the aim of this Division is to make these records of still greater practicable value.

### **DIVISION LABORATORY OF HYGIENE**

The State Laboratory of Hygiene has outgrown its present plant. Further expansion of activities is almost impossible until more space and improved equipment are available.

The 1935 General Assembly showed a sympathetic understanding of the problems confronting the laboratory and appropriated funds for the repair of the present building and made provision for a slight increase in personnel. They also enacted legislation permitting us to apply for a Public Works Administration loan and grant for a new Laboratory plant. With the approval of the State Board of Health, the State Planning Board, the Budget Bureau and the Governor and Council of State, a formal application was prepared and filed with the PWA State Engineer. The prospects looked bright until by Presidential decision PWA funds were limited to amounts much smaller than had been anticipated. It now appears that if we are to have a new laboratory, we must depend either upon a new appropriation by Congress, specifically for PWA, or upon further action by the North Carolina General Assembly. We assure you that we will continue the struggle to improve our laboratory facilities.

Since the conquest of syphilis is the next great objective of Public Health, the Laboratory has endeavored to improve its aids to the diagnosis of this disease. During the year, acceptable specimens of chancre serum have been received from every section of the State thus demonstrating that the specimen container is satisfactory. There is now available to every physician in the State the Darkfield method for the examination of serum from suspected chancres. Early diagnosis thus made possible, permits starting of treatment in the primary stage with most satisfactory results both to the patient and the physician. Early treatment shortens the period of infectivity, an essential objective if progress in control is to be made.

The Laboratory has participated in the second study of sero-diagnostic procedure for syphilis. This study has been conducted by the Advisory Committee of the United States Public Health Service. Both our Wassermann test and the Meinicke Clarification Reaction were included. It will be several months before the results are announced. If the findings indicate the desirability of changing our methods, the changes will be made. The tests included

in the first study all showed a disturbing number of presumably falsely positive reactions. We must urge that clinicians exercise caution in interpreting positive serological reports for specimens taken from patients with malaria. The same warning applies to a lesser extent for patients with tuberculosis, malignancy, fever, etc. The laboratory can not make a diagnosis. It merely aids in securing evidence upon which a diagnosis can be made by the physician. Every effort will be made to provide dependable laboratory evidence.

The conservation and development of laboratory facilities is of special importance to physicians. There are sent to the laboratory each year numerous specimens which can not yield worthwhile information. For instance, it is a waste of laboratory service to send a sample of water from an open well or an unprotected spring. The human eye can detect the potential danger in that source of water supply. Eighty per cent of such specimens will be found by the laboratory to be contaminated. For those reported uncontaminated, a false sense of security is developed and thus laboratory facilities are not only dissipated but actual harm is done.

If we use our discriminating judgment in selecting the type of specimens to be sent to the laboratory, we can conserve our present facilities and make possible a better laboratory service to each of the 100 counties in the State.

### SUMMARIZING

In presenting an account of our stewardship, it is desired to call to your attention outstanding accomplishments that merit attention, and we are sure, meet with your hearty endorsement.

By seizing the opportunity and securing Dr. Milton J. Rosenau, an internationally known instructor in preventive medicine, as director of the Teaching Unit at Chapel Hill, we were designated as the "Regional Training Center for United States Inter-State Sanitary District Number Two," comprising the States of Delaware, Maryland, District of Columbia, Virginia, West Virginia, Georgia, Florida, South Carolina and North Carolina, all named states contributing to the maintenance of the School, the first of its kind in the world.

I would like to call your attention again to the new activity. On January 1, 1936, through the cooperation of the Julius Rosenwald Fund, a colored physician was added to the Division of County Health Work as Field Agent to work on request of local health officers among the negro population in a program of public health education. This is the first service of this nature to be rendered in the United States.

With the one idea of rendering a greater and more wholesome service State and Industrial Commissioners, representatives from the U. S. Public Health Service and the North Carolina State Board of Health caused to be established within the State Board of Health a Division of Industrial Hygiene—this important public health activity to be administered by and through the Department of Health in cooperation with the State Industrial Commission—North Carolina being the first State to inaugurate such a program.

In order that North Carolina could participate in the funds coming out of the Children's Bureau, it was necessary to set up a State agency. Your officers of the State Board of Health were successful in securing such an agency within its ranks. As a result we have secured the privilege of managing and controlling the activities of three additional projects, namely:—Maternal and Child Hygiene, Dental Hygiene program and the Division for Crippled Children.





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